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## THE PROBLEM OF RAILWAY PASSENGER FARES AND TRAIN SERVICES

A suggested plan for equalising  
passenger travel over both rail  
and road services

BY J. H. LAUNDY

Formerly Audit Accountant, Southern Railway

PRICE ONE SHILLING

**THE RAILWAY GAZETTE**  
33, TOTHILL STREET, WESTMINSTER, S.W.1

### Economic Prospects for 1949

THE Economic Survey\* for 1949 gives no encouragement to ideas of lessened austerity for Great Britain. It declares that during the current year the nation will face a further stage in the fight against inflation, and that it will be necessary still to restrain home demand to maintain the export drive. The need for greater productivity will be no less than hitherto, especially in the key industries of coal, steel, textiles, and agriculture. Further efforts must be made to bring down costs, particularly of exports, and to maintain and improve the quality of our products. Of transport, the survey points out that the greater part of expenditure is on repairs and renewals, and only a small proportion on additions and improvements. In 1948 restrictions on capital investments limited both the construction of rolling stock and replacement of tracks. To make resources, notably steel, available for other expanding investment programmes, it has been decided that the railways replacement programme should be kept at a restricted level. Track renewals will continue in 1949 at approximately the level of 1948; existing restrictions on general building and maintenance work will have to continue for a further year, particularly where steel and timber in large quantities are required.

### Arthur Cooper: The Engineer of London's Tubes

With the death on March 8 of Mr. Arthur Reginald Cooper, a link has been severed with the early days of the London tube railways, and also with the more recent periods of substantial new construction. With the advantage of an admirable early training on the Great Western Railway at Swindon, he began his long connection with London's transport in 1901, when he joined the engineering staff of the Central London Railway. After five years he transferred to the Bakerloo Railway, which was one of the tubes in the Yerkes Group, and in 1908 he became also Engineer of the Metropolitan District Railway, another unit of the Group. His responsibilities were extended subsequently to all the tube railways, including the one-time independent City & South London Railway, and the Central London Railway, after they were brought within the Underground fold in 1913. One of the most important works for which he was responsible was the widening of the District Railway between Hammer-smith and Northfields, in 1911 to Acton, and onwards in 1932. When the London Passenger Transport Board was established in 1933, he became Chief Engineer of the whole undertaking, and as such was responsible for planning the whole of the civil engineering of the 1935-1940 New Works Programme in conjunction with the main-line railways, although his retirement at the end of 1937 left to his successors much of the actual construction work. He was Jubilee President of the Permanent Way Institution in 1933-34.

### British Railway Investments in Chile

The total amount of British capital invested in Chile is just over £47 million. The prosperity of the country is very largely dependent on the fortunes of the nitrate industry, and for a good many years now the return on the investment has been small. For last year it was no more than 1.9 per cent. and all but £10½ million received no interest. The British investment in Chilean railways amounts to £16,325,129 and the interest receivable is 1.9 per cent., the same as the general overall rate. The changes in the Chilean railway group, compared with the preceding year, have been very slight. Only the ordinary stock of the Antofagasta and of the Taltal railways have gone without dividends. As these two stocks total £7,615,344, however, it means that as much as 46.6 per cent. of the capital concerned received no interest.

### Selling Railway Service

Two excellent booklets reviewed elsewhere in this issue show that the Eastern Region of British Railways, which has produced them, is alive to the need for encouraging the spirit of salesmanship of its Railway Service Representatives on the passenger side, and for acquainting traders with the many freight facilities which the Region offers. The railways were

\* "Economic Survey for 1949." Cmd. 7647. H.M. Stationery Office. Price 1s.

unfortunate in that the war came when, with their high-quality services at low rates, they seemed to be getting on even terms with their road competitors. The agent, as the eyes and ears of the railways, is in close touch with their customers, actual and potential, and from the results of this contact the railways are able to plan and provide the facilities which the public seeks. One of the booklets points out, apropos of passenger fares, that the great fares and rates structure of the railways "cannot be pulled to pieces and rebuilt in a matter of weeks or even months," but the railways are trying nevertheless to provide as many facilities as possible for individual travel at fares lower than those for ordinary and monthly return journeys."

\* \* \* \*

#### Overseas Railway Traffic

A £710,250 increase in Canadian Pacific Railway gross earnings for January was insufficient to offset the accompanying advance in working expenses and, in consequence, a net deficit of £75,250 was returned. Gross earnings were £6,941,750 and working expenses at £7,017,000 were higher by £811,250. Net earnings for the comparable period of 1948 were £27,750, so that the net deficit for the first month of 1949 involved a deterioration by £101,000. The substantial declines in Leopoldina traffic that have occurred in recent weeks, were not continued in the fortnight ended March 5, when receipts at £98,726 were £5,101 higher than for the equivalent period last year; in the aggregate, Leopoldina receipts are down by £74,610, at £441,055. Further reverses were suffered by United of Havana traffics during the two weeks under review and they contributed to a total decline in receipts by \$3,070,055 for the current 35 weeks. Traffics were \$414,394 and \$461,385, and the aggregate now amounts to \$8,584,978.

\* \* \* \*

#### Britain and the Spanish Railways Centenary

In our December 10, 1948, issue we referred to the celebrations which attended the centenary of the opening to public traffic of the first railway line in Spain and regretted that no representative of British Railways had been present, although practically every Western European and at least one American railway administration had been represented. Our Spanish contemporary, *Ferrocarriles y Tranvías*, in its January issue commented on our remarks in the following courteous sentences: "Accurate as ever in its observations, our contemporary hits the mark with just and impartial commentary. It would have been a pleasure had the British railways not been the exception among the foreign delegations at the centenary. Not in vain was England the cradle of the railway, whose originator, Stephenson, visited our country in the last years of his life. The introduction of British elements in the early days of Spanish railways was of sufficient importance for the British railways to have been represented at the centenary. The relationship between the railways of various countries enjoys a tradition which has transcended always the concept of mere courtesy. It is to be wished that the greater or lesser dependence of the systems in relation to their respective States in the future will not be an obstacle, so that this tradition of friendship between the systems shall continue."

\* \* \* \*

#### Hotels Significance to Transport

The relationship between hotels and transport formed the subject of a paper which was read before the Railway Students' Association, London School of Economics & Political Science, on March 9, by Mr. F. G. Hole, Member, Hotels Executive. Sir Cyril Hurcomb, President of the Association, who introduced Mr. Hole, said the hotels had been separated from the railways at Executive level, because they were a specialised industry and required individual management, but he hoped the excellence of the hotels would be a means of increasing traffic. Though one of the functions of hotels was to offer recreation and rehabilitation to the people in their times of leisure, Mr. Hole said he thought they were primarily a necessity for the accommodation and refreshment of the industrialist, the businessman, the commercial traveller, and the tourist. The commercial hotel still reflected in many ways the spirit of England, and constituted a selling-point to

the tourist trade; it would be a bad day for this country if the growth of standardisation, uniformity and regulation were to overspread, let alone overwhelm, the personal character of our hotels and inns.

\* \* \* \*

#### Track Renewal in Switzerland

The Swiss Federal Railways, in common with most other large railway administrations, whether in neutral countries or otherwise, were required to handle enormously increased traffics during the period of the recent war, and at the same time track maintenance had to be reduced drastically. For example, instead of the normal average renewal rate of 81 miles of track per annum, the annual figure for the Federal Railways fell to 22½ miles only, during the years 1940 to 1945. As a result, the average age of the rails, which was 18·8 in 1923, had risen to 26 years by the end of the war. Swiss rail is of the flat-bottom type, bolted to steel or timber sleepers, and one of the illustrations on page 298 shows the method of hand stacking in criss-cross layers of the standard steel sleeper, necessitated by the curved form of the ends of the sleeper. Although today some 63 per cent. of the sleepers are steel, this compares with about 80 per cent. 40 or so years ago, as the tendency of recent years has been towards the increasing use of timber. Swiss permanent way is substantial, and generally very well laid and well drained. There is still a considerable amount of maintenance leeway to be made up, but it is being handled steadily.

\* \* \* \*

#### Main-Line Railway Suburban Services in U.S.A.

In a study of suburban services of the second rank of American big cities, of those which lack the urban electric railway systems of New York, Boston, or Philadelphia, Colonel Stanley H. Bingham, a Member of the City of New York Transportation Board, makes proposals familiar to many students of these problems, such as the linking of main-line and urban electric railways, dieselisation where electrification is not possible, and the provision at rail-road transfer points of bus-terminal space. His pleas for centre-door cars and high platforms are a reminder that in U.S.A., as in Britain, the problem of suburban services in many larger cities has hardly been tackled; meanwhile the main-line railways provide inadequate and outmoded services. Colonel Bingham considers that in U.S.A. lack of parking space for private motorcars and inability to extend the services of urban transport undertakings are thrusting more and more traffic on the main-line railways. No such stimulus to improvement exists as yet in Great Britain.

\* \* \* \*

#### An Irregular Block Acceptance

The accident at Ardler Junction, Scottish Region, on July 17, 1948, was an example of a regulation being broken and the very thing it is designed to provide against taking place. As will be seen from our summary of Brigadier C. A. Langley's report on the occurrence, which appears elsewhere in this issue, there were no outer home signals and, consequently, the acceptance of converging movements was prohibited. The signalman nevertheless accepted an up express, which was nearer than he thought at first and which he was anxious not to delay, after he had given permission for a train to approach on the branch line, and without first waiting for it to come to a stand. He became flustered when the two trains were approaching and the branch train was still seen to be travelling fairly fast, and did nothing to stop either of them. The branch train driver, who appears to have taken the main line signal as his, ran by the home signal and fouled the path of the express. This accident also is a reminder of the fortuitous nature of casualties. The collision was violent and was followed by much damage to stock, but, fortunately, neither train had many persons in it, and a down train, heavily loaded, was pulled up just in time.

\* \* \* \*

#### New Locomotives for the Luanda Railway

Throughout the Continent of Africa the increasing development of the economic resources of the territories is resulting in heavier calls on the transport systems. Because, in many cases, relatively light rail is used, and there are sharp curves and heavy gradients, the provision of suitable motive power

for heavy freight traffic becomes a matter of some concern. The Luanda Railway in Portuguese West Africa is of metre gauge, and in recent years has been called on to carry an increasingly heavy traffic. Further development, including a new branch line, is contemplated. It has a locomotive stock of about 50, mostly of the 4-8-0 wheel arrangement. Some 18 months ago it was decided to augment the available motive power and an order was placed with Beyer Peacock & Co. Ltd. for six Beyer-Garratt locomotives, which are now being delivered. The engines, of the 4-8-2 + 2-8-4 wheel arrangement, have been based on the design of the light-type standard metre-gauge Beyer-Garratts which have proved very successful units on a number of railways, including the Kenya & Uganda. The present locomotives, which are described elsewhere in this issue, are oil-fired and have a maximum axle load of 11½ tons.

\* \* \* \*

### British Transport Commission Traffic Receipts

THE returns of traffic receipts issued by the British Transport Commission in respect of the four weeks to February 27 again showed some heavy declines in railway gross revenue. The falling off was particularly marked in passenger takings, which at £6,610,000 were £618,000 less than for the corresponding period of last year. Over the eight weeks of the current year, compared with the like period 12 months earlier, the decline in passenger revenue is now no less than £1,677,000. Parcels by passenger train at £2,102,000 also showed a decline, this time of £108,000. The total decrease this year in this last category of traffic is now £162,000.

Merchandise and livestock in the aggregate brought in £6,793,000 during February, or £305,000 less than in the same month last year. The decline of this section of the railways' business was not quite so heavy as in the previous four weeks, but the aggregate fall for the eight weeks of this year is now £672,000. Mineral traffic, on the other hand, was slightly higher and improved by £169,000 to £2,400,000; it is now £431,000 greater than at this time last year. Coal and coke receipts, which were £5,457,000 in February, showed an increase of £220,000 on the month and of £389,000 over the eight weeks.

The result of these changes is that at £23,362,000 British Railways' receipts for February were £642,000 less than in the similar month for 1948. So far this year the aggregate takings are £45,930,000 or £1,691,000 less than at this time last year. In the following table details are given of the various categories of receipts achieved by the British Railways, London Transport, and Inland Waterways Executives of the British Transport Commission.

	Four weeks to February 27		Incr. or decr.	Aggregate to February 27		Incr. or decr.
	1949	1948		1949	1948	
	£000	£000	£000	£000	£000	£000
<b>British Railways—</b>						
Passengers .....	6,610	7,228	— 618	13,175	14,852	— 1,677
Parcels, etc., by passenger train .....	2,102	2,210	— 108	4,067	4,229	— 162
Merchandise & livestock .....	6,793	7,098	— 305	13,200	13,872	— 672
Minerals .....	2,400	2,231	+ 169	4,778	4,347	+ 431
Coal & coke .....	5,457	5,237	+ 220	10,710	10,321	+ 389
	23,362	24,004	— 642	45,930	47,621	— 1,691
<b>London Transport—</b>						
Railways .....	1,096	1,108	— 12	2,225	2,248	— 23
Buses & coaches .....	2,268	2,269	— 1	4,521	4,558	— 37
Trams & trolleybuses .....	813	831	— 18	1,623	1,671	— 48
	4,177	4,208	— 31	8,369	8,477	— 108
<b>Inland Waterways—</b>						
Tolls .....	60	55	+ 5	119	109	+ 10
Freight charges, etc. ....	97	80	+ 17	193	159	+ 34
	157	135	+ 22	312	268	+ 44
<b>Total .....</b>	<b>27,696</b>	<b>28,347</b>	<b>— 651</b>	<b>54,611</b>	<b>56,366</b>	<b>— 1,755</b>

Total gross traffic receipts of the British Transport Commission so far this year at £54,611,000 are £1,755,000 less than they were a year ago.

### International Railway Congress Association

AS we recorded in our December 17, 1948, issue, an enlarged meeting of the Permanent Commission of the International Railway Congress Association is to be held in Lisbon from June 1 to 5 this year. This is not the next Congress, for this was fixed at a meeting of the Permanent Commission held in Brussels on December 4, when an invitation from the Italian Government to hold the next Congress in Rome in October, 1950, was accepted.

Recently the list of questions for discussion at the Lisbon meeting has been made public by the Permanent Commission. The proceedings are being divided into sections: Way & Works, Locomotives & Rolling Stock, and Working. In the first of these sections, consideration will be given to mechanisation of the maintenance and renewal of the permanent way (on which Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Region, British Railways, has contributed a paper, which was printed in the December issue of the *Bulletin* of the International Railway Congress Association), recent improvements relating to reinforced concrete and prestressed concrete sleepers, with the results obtained, and the recovery and strengthening of metal bridges that have reached the theoretical limit of safety.

The second section, covering locomotives and rolling stock, will consider electric locomotives for fast trains (75 m.p.h. and over). There will be a discussion of adopted and projected types and of such matters as the arrangement of the axles, the type of axle drive, electric motor characteristics, and braking. Mr. G. A. Dalton, Chief Electrical Engineer, South African Railways, is preparing a paper on this subject.

The third section will deal with the transport of miscellaneous goods and will consider the concentration in a certain number of selected centres of miscellaneous traffic, transport by rail between centre-stations, by road or rail between the originating points and the nearest centre-station, and also to the last centre-station near the destination. There will be a discussion on the interest of the scheme for the conveyance of goods traffic, organisation of the station centres, and of the collection and delivery services, and of the financial results of the scheme. One of the reporters will be Mr. P. H. Sarma, Director of Wagon Exchange & General Secretary of the Indian Railway Congress Association.

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### The London Transport Programme

IN a friendly and informal atmosphere, Lord Latham met representatives of the technical press last Friday to outline the development programme of the London Transport Executive for 1949, and, to some extent, for a longer period. He was accompanied by two Members of the Executive and by its Chief Officers, who answered questions and gave explanations freely. No major new scheme was announced, but Lord Latham emphasised the interdependence of development works and their respective priorities, and referred first to the railway improvement needs in the Greater London Region, of the Government proposals for the decentralisation of population, involving the creation of new towns and the expansion of existing towns.

Arising out of the recommendations of the Railway (London Plan) Committee, the British Transport Commission appointed a Working Party to undertake a comprehensive review of railway requirements. The proposals of the Committee, often referred to as the "Ingilis" Committee, were brought into consideration by the Working Party, which has now produced a comprehensive plan of the railway developments required in London, not only to meet existing traffic needs, but also future needs so far as they can be foreseen, while making a substantial contribution towards planning. The plan has been submitted by the British Transport Commission to the Ministry of Transport for its consideration, and the matter is, thus, *sub judice*. It is therefore not possible to indicate precisely what railway works are proposed.

Of railway works envisaged for the more immediate future, Lord Latham instanced the Bakerloo Line extension to Camberwell, to be begun next year; the quadrupling of the tracks between Acton Town and Hanger Lane junction to segregate Piccadilly Line and District Line traffic; and a burrowing junction at Rayners Lane, where the Piccadilly Line converges with the Metropolitan Line. The final stage in the present programme



of electrification of Eastern Region tracks and the projection of Central Line trains from Loughton to Epping is expected to take place in the latter part of 1949; works are already well in hand.

The road vehicle situation is briefly that during 1948 there was an appreciable but still insufficient intake of new vehicles; 771 new RT type double-deckers, 54 single-deckers, and 76 8-ft. wide trolleybuses were placed in service, in addition to a few new buses on loan from provincial undertakings. Because of age and body condition, vehicles are now being withdrawn at a faster rate than that at which new vehicles are being delivered, but operations are being maintained with the aid of the provincial buses and hired coaches. Deliveries will be nearly doubled in 1949, but even these will be insufficient to counterbalance withdrawals.

The urgent task of replacing the South London trams is regarded by London Transport as a measure of the highest priority. Its date of commencement is dependent on two factors: the bus situation and the garage situation. Two new garages and the conversion of seven tram depots are a prerequisite, and London Transport now has permission to go full speed ahead. The conversion will take place in several stages, each covering a section of the present tram area, and will occupy between two and three years.

### The U.S.A. Railway Position

IN our February 4 issue, an article, based on Dr. J. H. Parmelee's review of 1948 operations, showed that the U.S.A. railways improved their financial position last year, though traffic fell below the record peacetime level of 1947. We were therefore surprised to read in *The Manchester Guardian*, under the heading "Troubles of U.S. Railways," a communication sent by Mr. Alistair Cooke from New York on March 1. Mr. Cooke begins with the statement that "the Interstate Commerce Commission has been listening to Robert R. Young, the audacious Chairman of the Chesapeake & Ohio Railway, who two years ago had the effrontery to run a railway at a profit and so incensed the Association of American Railroads that he set up his own trade association, bearing the fulsome title of the Federation of Railway Progress."

The C. & O. paid dividends on its common stock long before Mr. Young became its Chairman. In 1936, the dividend was \$3.8 per share, so that there is nothing remarkable about the dividend of \$3.5 paid during the war years, or the 1947 payment of \$3.56 per share. Mr. Young's quarrel with the A.A.R. is entirely of his own choosing, and he is forced to use the services of some branches of that organisation, such as the Car Service Division.

Mr. Cooke next quotes Mr. Young as saying, in evidence to the I.C.C., that the United States is on the way to a serious depression, chiefly because of the poverty of the railways, which might have to abandon passenger services in five years' time if they did not get an immediate increase in freight rates. In recent times, Mr. Young has tried to make the C. & O. a pioneer in improving passenger service as a means of gaining freight business. According to its 1947 report, passenger service became the show-window of the C. & O., but in 1948 its passenger takings were only \$11,524,000, representing 1.2 per cent. of the total passenger revenue of U.S.A. railways and 3.7 per cent. of the C. & O.'s own freight revenue. The C. & O. is predominantly a freight carrier, almost 75 per cent. of its tonnage being coal and coke. So Mr. Young need not be taken seriously as an authority on passenger services. Admittedly these services do not pay, but, so far from withdrawing them, many railways have installed new passenger equipment which will last for 25 years or longer.

Mr. Cooke next calls the Long Island Railroad "the wretched microcosm of all the ills that one way and another afflict the nation's railways." Actually the Long Island is far from being a miniature representation of a typical American railway. It is a short line of 376 miles, of which 138 are electrified, dealing with New York's outer suburban traffic. Mr. Cooke says that "it carries daily millions of season-ticket holders." If he had said a quarter of a million "commuters" a day, he would have been nearer the mark. Because of

intensive road competition, the Long Island was short of a net railway operating income in 1947 by over \$2,000,000. Last year the deficit was almost doubled, but the main-line railways were not in the same predicament, as will be seen from the table below showing the net railway operating income of seven of the chief systems in 1947 and 1948.

Railway	1947 000s	1948 000s	Increase per cent.
Santa Fe	54,302	68,715	26
Baltimore & Ohio	29,100	43,110	48
C. & O.	42,615	45,448	6
C. B. & Q.	31,781	32,737	3
New York Central	24,520	37,222	51
Pennsylvania	32,311	69,293	114
Union Pacific	36,757	41,975	14

These results were public property in the States about the middle of February and do not justify a pessimistic view of the railway situation. Mr. Cooke writes that after the first world war the railways "were returned to private ownership in 1920, since when they have failed to recover their prosperity." This ignores the reasonably good time the railways had until 1930, with a peak year in 1929. Then came the slump in trade, and by 1939 no fewer than 108 railways, owning 77,000 miles, were in the hands of receivers or trustees. Mr. Cooke writes as though circumstances had not changed, but this mileage has decreased year by year until only 44 railways, owning 14,400 miles, were not free agents at the end of 1948. The only large railway in the list was the Missouri Pacific, owning 7,012 miles, and it may get clear of the courts soon as it had better results last year.

We have dealt with the article in *The Manchester Guardian* at some length, because that newspaper deservedly has a high reputation for the accurate presentation of facts. On this occasion its American correspondent seems to us to have written in a strain which might lead readers to think that the railway situation in the United States is more serious than latest developments indicate.

### Production and Maintenance of Long Welded Rails

DURING the past ten years, flash-butt welded rails, 360-ft. long, have become the accepted practice of London Transport, for both maintenance renewals and new works, and are now in use on more than 70 miles of main line. Some of the problems involved in the production and maintenance of this type of track were considered in a paper by Mr. H. C. Trissler, at a recent meeting of the London Section of the Permanent Way Institution.

On concreted tracks in tube tunnels, and ballasted track in tunnel sections, long welded rails, with machined joints, staggered at approximately 60 ft., are used on straight track, and curves of more than 20 ch. radius. On open sections, expansion switches (staggered at 60 ft.) are provided at ½-mile intervals, and, if the radius of curvature is between 20 and 30 ch., the switches are provided at the ends of all curves, and between reverse curves. The purpose of the expansion switches is not so much to allow the rails to "breathe" in varying temperatures, as to have in the track a quick and safe means of relieving rail stresses. Wooden keys are used with the long rails, as they afford some relief to rail stress, by allowing a small movement, unobtainable with steel keys.

Two automatic flash-butt welding plants are in use. One is mobile, and was designed primarily to operate at new works depots, but the other is a fixed plant, housed at Lillie Bridge Depot, and is used to produce supplies of rails for maintenance. Storage space is available, and the plant is laid out and equipped to facilitate the handling of the rails. The actual welding process takes about 2½ minutes. On its completion, the joint is rolled clear of the machine, and the extruded metal is removed by hand, with light pneumatic hammers with chisel ends, while it is still hot. The welded joints are then post-heated electrically to a temperature of 800° to 850° C. This process restores the normal structure of the rail ends after they have been hardened and made brittle by welding.

At the beginning and end of each day's welding, two test welds are made, with short rail ends. These test pieces are subjected to two blows from a one-ton monkey from a height of 7 ft., directly on the welded joint, which is placed at the centre of a 3-ft. span. If either of the welds fractures, and the



failure is not due to a fault in the rail steel, the welds already made on that day are cut out, and the rails returned to store for re-use. The welding plant is then overhauled, and adjusted until a satisfactory series of welds has been produced.

Current rails are welded into 300-ft. lengths at Lillie Bridge Depot, but, as this type of steel has little or no carbon content, its structure is unchanged by welding, and post-heating is unnecessary. Moreover, as mechanical strength in current rails is of comparatively small importance, strength tests are not required. When the current rails are delivered to site, they are welded into lengths of up to  $\frac{1}{2}$  mile with mobile arc welders.

The maintenance of track laid with long welded rails presents several features of interest. Experience has shown that a temperature variation of 50° F. is the maximum to which this type of track should be subjected without being freed from stress, and it is the standard practice of London Transport to unkey the long rails, on the open sections of track, during the early Spring, and at mid-summer. This operation is carried out by the maintenance gangs under traffic, during the mid-day period, when a speed restriction of 15 m.p.h. can be imposed. Slack-fitting false keys, approximately 1 ft. long, are inserted in every tenth chair, and the inner and outer rails of the track are dealt with separately. Three hours are required to free and re-key  $\frac{1}{2}$  mile of track.

Records of the number of man-hours spent on track maintenance have been kept over a period of five years on two test lengths, one laid with 60-ft. rails, and the other with 300-ft. welded rails. The results show a decided saving in favour of the long welded track. It is of interest to note, however, that more time was spent in maintaining the individual joints in the long rails than those in the 60 ft. track, and more time was spent on the alignment of the long rails. The reduction in the number of joints has thus resulted in a more even distribution of track-maintenance time over the full length of the rails, and an increase in the standard of maintenance.

### Queensland Railways

**C**ESSATION and curtailment of services in February and March, 1948, arising from a strike by workshops and running sheds staff because of a dispute over "marginal" wage increases, were the cause of a drop in 1947-48 passenger journeys of 4,846,113, compared with 1946-47. The report for the year ended June 30, 1948, of Mr. F. E. Maloney, Commissioner for Railways, records that goods traffic slightly increased, by £489,106, to £6,732,924. Earnings from livestock conveyance advanced from £1,024,642 to £1,138,073. Working expenses rose to £10,339,138, an increase of £460,292. The net revenue of £792,786 compared with £742,325 in the previous year. The year's deficit of £671,087 was £41,487 less than that in 1946-47. Principal results appear below:—

	1946-47	1947-48
Passenger journeys ... ..	33,974,130	29,128,017
Goods tonnage ... ..	4,698,439	4,586,844
Livestock tonnage ... ..	714,020	645,362
	£	£
Passenger, parcels, and miscellaneous receipts ...	3,352,711	3,260,927
Goods and livestock receipts ... ..	7,268,460	7,870,997
Gross earnings ... ..	10,621,171	11,131,924
Working expenses ... ..	9,878,846	10,339,138
Net revenue ... ..	742,325	792,786
Interest on capital ... ..	1,454,899	1,463,873
Deficit ... ..	712,574	671,087
	Per cent.	Per cent.
Operating ratio ... ..	93.01	92.88

The locomotive situation has been a matter for concern, as the percentage of engines in for repair has been high—29.37 per cent. out of commission by April, 1948. More work fell therefore on available locomotives. Although 26 new class "C 17" engines had been ordered from Australian builders in 1946, none had been delivered by June 30, 1948. Additional contracts were placed in 1947 and 114 machines are on order.

A large programme of way and works improvements has been recommended to the Government. Mr. F. H. Harrison, Chief Mechanical Engineer, South Australian Railways, who was appointed by the Queensland Government to inquire into the location of equipment and operation of workshops throughout the State, presented his report. The report was also received of a Commission set up to inquire into the practicability of electrifying the Brisbane suburban railways, but the Government has asked for clarification of some features before giving a decision in the matter.

### The Genesis of Railways

**M**ANY years have passed since serious attention was given to the important part played by the early mineral railways of the Northumberland and Durham coalfields in having evolved all the basic features of the modern railway. Probably this has been a result of the scholarly and detailed attention given to certain aspects of the subject by the late Mr. W. W. Tomlinson in his monumental work on the "North Eastern Railway" (published in 1914) and to the popular attention to the subject that resulted from the holding of the 10th International Railway Congress in this country in 1925 coincidentally with the centenary of the Stockton & Darlington Railway. Since then, considerable research, and the discovery of many documents, have added to our knowledge, and a detailed examination of the evidence was presented by Mr. Charles E. Lee to the Newcomen Society at a meeting held at the Institution of Civil Engineers on March 9 in a paper entitled "Tyneside Tramroads of Northumberland." The material had been prepared with particular reference to providing a picture of the engineering background of George Stephenson, the centenary of whose death occurred last August, and, incidentally, it demonstrated the great practical importance of his work, in contrast with the interesting but unfruitful efforts of some of his contemporaries, whose descendants have made strenuous efforts to belittle Stephenson.

In brief, the North East Coast gave us the transverse wooden sleeper, the edge rail, the flanged wheel, the rail chair, a gauge of 4 ft. 8 in., the steam locomotive relying exclusively on adhesion, the coned tyre, and the wrought-iron rail. Northumberland cannot claim to have the first known English railway, as we have documentary evidence of a line in 1597, but at least it adopted the railway as early as 1609 at Cowpen and Bebside, near Blyth. As mines adjacent to the river (naturally the earliest to be worked) became exhausted, coal owners found it necessary to sink shafts further inland, and railways thus became a necessity rather than a convenience. By 1649, their use had spread, but it would seem probable that the main development began after the Restoration, and it is probable that the first Northumberland railway of any great length was built in 1671 from the South Gosforth Collieries to the river. This route later became famous as the Coxlodge Wagonway, and was used for various railway purposes until 1885. After lying derelict, it was purchased by the Tyneside Tramways & Tramroads Company in 1901 for use as an electric tramroad (of standard gauge) which duly worked from 1902 to 1930. Rail traffic then ceased on a route which had carried different forms of goods and passenger vehicles for 250 years, but the land was conveyed to the London & North Eastern Railway in December, 1935, and its successor may yet resume its ancient use. This Coxlodge Wagonway was the line on which rack rails and steam locomotives of Blenkinsop and Murray types were introduced in September, 1813, and five years later George Stephenson improved the line and devised an ingenious combination of gravity and steam power to work it.

Another historic railway which Mr. Lee examined in detail was the Killingworth Wagonway, the training ground for George Stephenson, and almost certainly the reason he adopted the standard gauge, which the early export trade in his locomotives carried so far afield. The first section of this line was built in 1762, and has long since disappeared under modern houses, but the extension of 1806 to West Moor, Killingworth, on which Stephenson's pioneer adhesion locomotive *Blucher* ran its original trials still remains in use, and conveys coals to the North Eastern Region main-line railways.

Among many other points of interest in the paper were details of the earliest "underground railway," a three-mile line built in 1770 from Kenton to Scotswood, and another underground colliery line beneath the centre of Newcastle which was converted to an excellent air-raid shelter during the recent war. A complex group of railways based on Percy Main, with a lengthy and interesting history, has now passed under various nationalisations, either into the hands of the National Coal Board or those of British Railways, and on parallel lines it is possible to see two trains of the respective national corporations running neck-and-neck on the journey to the staith. Three maps which accompanied Mr. Lee's paper were prepared in the drawing office of *The Railway Gazette* and received commendation from engineers from many parts of the country.

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

### Brighton Railway Suburban System

86, Bishops Park Road,  
Norbury, S.W.16. March 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—May I point out an omission from your excellent and interesting map in last week's issue, of the L.B.S.C.R. and connections in the London area? I refer to the Herne Hill—Tulse Hill curve opened in 1896 to permit L.C.D.R. trains to work through to Wimbledon. May I express the hope that this map as well as that published in 1945 will be made available either in a separate leaflet or perhaps in *The Railway Magazine*?

Yours faithfully,

C. J. MAULTE

### Professional & Technical Staff

London, S.E.14. March 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your correspondent, "Old Ashfordian," surely cannot believe his suggestion that he is standing alone in the current controversy regarding railway engineers' salaries. The editorial in *The Railway Gazette* for October 15, 1948, was timely and cutting in its attention to the "corrosion of resentment among promising men" of the British Railways technical staff; the echo from those men was not immediate, however.

Railway engineers' attitude towards their job is no different from that of any other class of engineer. They find the work interesting and absorbing, and the very fact that it is congenial is a large factor in their acceptance of such poor remuneration. Engineers always have been slow in voicing their inner feelings, but "Old Ashfordian" can take heart by glancing back at the flow of correspondence commenced by "Slow Line" on November 19, 1948.

The miners—who among us could call their job congenial?—had by the very nature of their employment every incentive for pressing for higher pay. The continued unrest in that industry finally brought new and better conditions for the men. I cannot predict that the same unrest is either likely or possible amongst railway engineers, but it seems very unfair that those who shout the loudest should get the largest reward!

The agreement concluded on March 4 between the R.C.A. and the Railway Executive is evidence enough that there is no intention to reward the engineers properly. It would be unfair to blame the R.C.A. It undoubtedly tried all it knew and was urged by the feelings of its P. & T. membership. "Old Ashfordian" is far from standing alone, but what can we do next to further our cause?

Yours faithfully,

BRANCH SECRETARY

### Passenger Fares

Dalston Road,  
Carlisle. February 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have been interested in the letters referring to passenger fares in *The Railway Gazette*. Surely the time has now arrived, as the result of nationalisation, for the Government to take an important step towards deflation, by reducing railway fares. I am in touch with quite a few practical railwaymen, and all are agreed that the simplification and standardisation of railway and bus fares is long overdue.

I would go much further than your correspondents and say that what is wanted is a standard third class single fare of 1½d. per mile and return fare of 2d. per mile, with first class fares double. Rail and bus tickets between any two points should be the same and they should be interavailable, with no restrictions on return tickets. To me it is pathetic to see trains running about the country more than half empty, while buses are overcrowded and cannot take all potential passengers. What the railways want is regular traffic daily, and surely it should be evident that it is better to carry 300 passengers at 1½d. per mile than 50 at 2½d. It is no use living in the past. When one remembers the lack of vision which characterised the railway managements after the first world war, one wonders if the same thing has to happen all over again.

As far as simplification is concerned, I would suggest that all present-day reduced fare arrangements and instructions should be abolished. The suggested standard return fare of 2d. per mile would be within the reach of all classes of the

community, and would apply on all occasions, any train, any day. Even privilege tickets could be dispensed with, as this return fare would be very little higher than quarter present-day fares.

It is impossible to enumerate all the advantages which would accrue to the railways, but these will be evident to the majority of railwaymen. My own view is that it is the only way the travelling public can be got back on to the railways, and I cannot see them paying their way until action on these lines is taken. Special excursion trains with tickets hedged all round with restrictions, expensive publicity and propaganda, and free tickets to promoters, are no adequate answer to the question.

Yours faithfully,

J. M. PIKE

### "Through Great Central Eyes"

The Railway Executive,  
Eastern & North Eastern Regions,  
11, Blandford Square,  
London, N.W.1. March 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Let me try to reassure Mr. Leedam, whose letter was published in your issue of March 11. A full-length history of the G.C.R., its predecessors (such as the Sheffield, Ashton-under-Lyne & Manchester, and Manchester, Sheffield & Lincolnshire railways) and the lines it absorbed (South Yorkshire, Lancashire, Derbyshire & East Coast, and Wrexham, Mold & Connahs Quay railways) is being compiled by me, although progress is slow because of pressure of other work.

Thanks to many G.C.R. officers and men and railway enthusiasts it has been possible to amass much valuable information and illustrative material, and some of the best efforts of the G.C.R. publicity department—such as "Per Rail"—are in my possession.

It is not yet possible to say when the book will be published—but within two years I hope it will see the light of day.

Yours faithfully,

GEORGE DOW,  
Press Relations Officer

### The Diesel-Electric Locomotive and Home-Produced Fuel

St. Stephens Club,  
Westminster, S.W.1. January 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—May I offer some comments on whether it would be a good policy to develop the use of diesel-electric traction on British Railways? In particular, I would like to refer to the second paragraph of Mr. Linecar's letter in your issue of December 17 last, which reads as follows: "I should have thought it was obvious to any thinking person that to base our transport on an imported fuel supply is to ask for trouble—economic trouble in peacetime and starvation trouble in time of war."

Probably Mr. Linecar's pessimism is based on the fact that pleasure motoring was restricted during the war, and, in fact, is still subject to restriction. Oil, however, was the fuel which enabled us to win the war, as the Navy, the mechanised Army, and the Air Force were operated almost exclusively on some kind of oil fuel. Statistics recently have been released which show that in the last phase of the war, after surviving the dangers and losses arising from submarines, mines, and bombing attacks from the air, this country was actually importing 50 per cent. more oil products of all kinds (of which petrol was a major item) than in 1938. At no time during the war did Britain's oil supplies fail, nor, indeed, did the Allies suffer from lack of oil.

It is now 3½ years since the termination of the war, and pleasure motoring is still curtailed by Government decree, but there is no lack of oil supplies for essential needs.

Periodic pronouncements by experts that the world's supplies of oil are drying up, which have been quoted in the press since the early years of this century, generally have been followed by announcements of record-breaking outputs of oil. The 1947 world production was, as usual, an all-time record, and there are indications that when 1948 production figures are available, yet another all-time record production will be shown. The recent announcement that 90 million sterling is to be spent by the oil industry on new oil refinery projects in the U.K. indicates that the industry itself does not fear a shortage of crude production.

It is very difficult for some people in this country to accept the fact that we are now living in a two-fuel world, and a great

industrial nation cannot carry on successfully without both fuels, i.e., coal and oil. Each fuel, of course, should be used for such purposes as will yield the greatest advantage, and other things being equal, the home-produced fuel should be the first choice. However, in the matter of transport, oil power has so many advantages over power produced from coal that this country simply cannot afford to fall behind in developments which other countries readily accept.

Railway traction is one field in which the advantages of oil power are many and important, not the least being the overall fuel economy obtained. Even if the whole of the steam locomotives of our railways were replaced with diesels, only about 24 million tons of oil a year would be required to replace the 13 million tons of coal now used, and as such a change would require 10 to 20 years to carry through to finality, the increased quantity of oil required to be imported each year would be relatively unimportant, and would place no strain on the resources of the oil industry.

The foreign exchange aspect of such a change, too, would be quite beneficial, as 13 million tons of coal released for export would not only pay for the oil required for the diesel-electric locomotives, but would leave a handsome margin of exchange profit for the nation.

It should be recognised that there is a fundamental difference of profound significance in the methods by which oil and coal are extracted from the earth. Oil is pumped up by mechanical power, whereas to obtain coal it is necessary to employ an enormous number of men in arduous and often dangerous work underground, and it is this human factor which in coal-producing countries sometimes produces a state of affairs in which it is easier to obtain imported oil than home-produced coal. Britain has not escaped this experience.

The opponents of diesel traction may not be aware of the great opportunity which this country is missing as a result of their policy. There is now a large and rapidly growing world demand for diesel railway units for which British manufacturers ought to be able to cater. Foreign buyers come to this country and can be shown small industrial diesel locomotives, and even a substantial number of diesel shunters in use on the main-line railways, and orders for these types can be negotiated on terms of equality with foreign manufacturers. When it comes to big main-line diesels, however, we have virtually nothing to show, and the foreign buyer inevitably turns his attention to American manufacturers who, with an enormous home market well forward in development, are able to demonstrate the capabilities of their units.

If diesel-electric traction does, in fact, offer technical, operating, and financial advantages to British Railways—and the railway authorities should be the final arbiters on this question—then diesel-electrics should be used, and neither political considerations nor unwarranted fears of failing oil supplies should be allowed to obstruct the march of progress.

Yours faithfully,

G. R. LLEWELLYN

## The "Burlington" Centenary

Frugal, March 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The article in your March 4 issue on the Burlington Railroad passing "milepost 100" scarcely shows its importance as a freight carrier. In 1947 freight receipts were 82 per cent. of its operating revenue; passenger takings were only 8.6 per cent. The "Zephyrs" and "Vista Domes" are sideshows, with a high advertising value, but the secret of the Burlington's success lies in its operating ratio of 68 per cent. The Santa Fe and the Union Pacific, the two larger systems in the Central Western States, had an operating ratio of 73 per cent.

The good operating on the Burlington is made possible by efficient maintenance of permanent way and equipment. Its rolling stock is much younger than the vehicles on the average American railway. At the end of 1947 only 2 per cent. of the wagons on its line were unserviceable, as compared with 5 per cent. on the Santa Fe and nearly 10 per cent. on the Pennsylvania. During that year the Burlington moved each wagon 63 miles in a day; the average distance for all the U.S.A. railways was 48.

The Burlington route now extends to 10,500 miles of road. It is owned in equal shares by the Great Northern and Northern Pacific railways. The three railways together cover 25,800 miles and worked in 1947 more than twice the ton-mileage of British Railways, in trains seven times the size of ours, at double the speed. Their financial union was brought about by James J. Hill, who subsequently acquired 1,650 miles of railway in Colorado and Texas to give an outlet to the Gulf of Mexico, and began to build about 250 miles of new line through Wind River Canyon, Wyoming, to connect the Bur-

lington with the Great Northern and Northern Pacific at Billings, Montana.

The three railways are managed independently and keep their individual characteristics. The current statistics of the "Hill roads" do credit to the great railwayman who organised and improved their facilities so that they could go on moving more and more ton-miles.

Yours faithfully,

R. BELL

## Level Crossing Protection

Dunsmore, Maynards Green,  
Horam, East Sussex, March 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—With reference to recent correspondence on level crossing protection, there are instances in Switzerland of the standard pole-type barriers being operated automatically by the trains through relay contacts on the overhead contact wires in the same way as the flashing lights and bells already referred to. Presumably, operation could be effected through some form of track circuit on non-electrified lines. Recently signals have been added, giving train drivers a positive indication that the barriers are properly closed.

This form of protection effectively prevents "rushing" of the crossing. Sufficient space is left between the barriers and track for vehicles trapped by the lowering of the poles.

Yours faithfully,

HENRY BUTTER

## Protected Third Rails

Nigerian Railway,  
Ebute Metta, Lagos,  
Nigeria, February 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Allow me to express my appreciation for your latest edition of *The Railway Handbook* which I have found so interesting and instructive.

May I be permitted to draw your attention to one point, small as it may be, in the article, Principal Electrically Operated Railways, page 40, Germany, where it gives the Hamburg Suburban as worked on overhead conductor. The system was converted to third rail during the war—about 1942 or 1943, although the exact year I cannot exactly state. The old stock used with the overhead system is stored (or perhaps I should say was stored, as I left Hamburg in February, 1946) at various points on the line.

An interesting point to note is that both on the Hamburg Hochbahn and the Suburban (Reichsbahn) systems the third rails are enclosed in a wooden box or cover, and on one the contact is made to the underside of the suspended rail and the other to the side of rail on the track side, the rail being fixed on its side. The wooden cover is yet one more example of German ingenuity which is worth considering for adoption in our future electrification programmes. It obviously adds to the safety of all men employed on the track.

Forgive me if the correction may be small, but it was my desire that *The Railway Handbook* be up to the minute, and, after all, we appreciate that a number of changes must have taken place on the Continent during the war years.

Yours faithfully,

A. M. MACDIARMID  
Assistant Traffic Officer

[We thank our contributor for pointing out the omission. The Hamburg suburban lines and their conversion to third rail were described briefly in our issue of June 20, 1947. The protected third rail is not a result solely of German ingenuity, and has long been in use in the United States. The only example in Britain is the Manchester—Bury—Holcombe Brook electric line of the former Lancashire & Yorkshire Railway; on this the high voltage used (1,200) called for the use of a covered conductor rail. More ample clearances on foreign lines make it easier to lay a protected third rail, and the severe climatic conditions often experienced abroad make such an installation desirable, irrespective of the voltage used.—Ed. R.G.]

TRENT MOTOR TRACTION ANNUAL MEETING.—Mr. J. W. Womar, Chairman, presiding at the annual general meeting of the Trent Motor Traction Company on March 8, said that since 1913 their company had provided under private enterprise efficient services to the public at rates which ranked among the lowest in the country. As any nationalised scheme for road motor transport must inevitably bring about an increase in fares it was to be hoped that whenever the occasion arose the public would realise the danger and would not fail to register its protest.



## The Scrap Heap

### REPAINTING SALTASH BRIDGE

Antics of eight men, now repainting famous Saltash Bridge—which, according to Cornishmen, "ties England on to Cornwall"—amuse passengers on the ferry—180 ft. below.

Isambard Kingdom Brunel's £230,000 bridge is half-a-mile long. Six hundred gallons of steel-grey paint are being used on the approaches and the two 455-ft. main spans. The Royal Albert Bridge, which Queen Victoria's consort opened in 1859, has now ten years to go to its centenary. Brunel's name is on the iron structure in bright yellow letters.

Above and below the bridge, in the Hamoaze, bunches of naval craft are anchored. In view of the well-known dislike of admirals for paint in the wrong places, do H.M. ships now passing beneath the bridge put out tarpaulin sheets to protect decks from a possible drop of colour?—*John Bouverie in the "News Chronicle."*

\* \* \*

### THE NEW COMER

(The Great Central Railway London Extension was formally opened on March 9, 1899, and the public service inaugurated on March 15, 1899.)

There's a flutter at St. Pancras, there's a bustle at Kings Cross,  
They are posting bills and tearing time-sheets down,  
There's uneasiness at Euston in the office of the "boss"—  
For the Central is a-coming up to Town.

They spoiled the Rugby polo-ground, they cast their eyes on Lord's,  
They bridged the great Nor' Western's four-fold track,  
They tapped the Midland's coal preserves: and now it's on the boards  
"From Manchester to Marylebone and back."

On the crowded lines of Derby, 'mid the busy towns of Notts,  
Thro' the villages and pastures of the shires  
There's another whistle sounding; and to snug secluded spots  
They are sending train on time along the wires.

Then let them come with all their strength! we're ready for a race,  
Be it dining cars or cattle, fish or coal; Green, Red, and Black, we're waiting: let their monsters make the pace,  
And three of us will race them to the goal.

For it's hard to beat the Northern when the eight-foot single hums,  
And the Midland racers "fly" in spite of weight,  
And it's hard to beat Nor' Western, when a big Crewe compound comes,  
With just a dozen bogie-cars for freight!

So clear the line before us, drop your signal, set us free!  
We are "blowing off," and chafing at delay;  
And let the Central do its best, the country soon shall see  
Which one of us will show the rest the way.

A.B.S.

—From "The Railway Magazine" of April, 1899.

### THE PRICE OF FRIENDSHIP

For weeks a passenger on the 7.10 a.m. from Cernay to Paris, pulled the communication cord as the train was leaving the station.

He explained in court: "I noticed that the train always started a little early, and many of my friends were left behind."

His passion for punctuality cost him a £2 fine and £8 damages.—*From the "Daily Mail."*

\* \* \*

### GONE COMPLETELY

The defunct Great Central Railway is in the news again, the occasion being the jubilee of the extension of its line from Nottinghamshire to Marylebone. Before becoming the Great Central it was the Manchester, Sheffield & Lincolnshire Railway, and was such a struggling concern in the nineties that the "M.S. & L." was sometimes called the "Money, Sunk and Lost." When it changed its name and became the "G.C." this version became "Gone Completely."—*From "The Manchester Guardian."*

\* \* \*

### THE MINISTER'S GOLD WATCH

Railway workers at Kings Cross have earned the thanks of the Minister of Transport, Mr. Alfred Barnes, for the safe return of a gold watch which he recently left in a sleeper from Edinburgh to London.

Mr. Barnes did not discover his loss until some hours later, when he had returned to his office, and inquiries showed that the watch had been found by Carriage Cleaner Newman, who had at once handed it to an official.

The watch was presented to Mr. Barnes, first President of the London Co-operative Society, as a mark of appreciation by the London Co-operative Society Guilds Women in 1924. "I am particularly thankful to have my watch back, apart from its intrinsic value, because it was presented to me many years ago and has a high sentimental value for me," Mr. Barnes states in a letter to Sir Eustace Missenden, Chairman of the Railway Executive. "I am also gratified, as a Minister, at this evidence of the integrity and efficiency of the railway staff."

### Paper Pillows on Sale at Kings Cross



Selling paper pillows to passengers on the "Aberdonian" at Kings Cross (see paragraph on page 274 of last week's issue)

### 100 YEARS AGO

From THE RAILWAY TIMES, March 17, 1849

### SOUTH WALES RAILWAY.

The half-yearly meeting was held on the 25th ult., at the Paddington station of the Great Western Railway, CHARLES RUSSELL, Esq., in the chair.

The preliminaries having been disposed of,

The CHAIRMAN said—Gentlemen, during the period that railways are under construction, the most important subject for consideration is the progress of the works; and thus the proprietors look rather to the report of their engineer than to that of the Directors, as it contains matters which most interest them. It is, however, the duty of the Directors to explain to the proprietors the general principles by which their proceedings are guided, and to tell them the way in which the Directors think that their enterprise can be most successfully and most rapidly brought to completion, and, above all things, in these days to consider how capital can be applied with most economy and effect. Gentlemen, at the period when we began the South Wales Railway, money required for railway purposes was abundant, and the confidence then entertained in railway enterprise was high. The course which it then appeared most expedient to pursue was to bring to completion the entire line, from the one extremity to the other, in the least practicable time, simultaneously. We hoped by that means to avoid the application of any considerable portion of our capital to the payments of interest and other charges incidental to the progress of the work; that we should thus preserve a great part of the capital to be applied to the works themselves, and should by that means render the undertaking profitable to ourselves in the earliest possible portion of time.

Under the circumstances which then existed, I believe that course was the most judicious which we could then pursue, and that course we have accordingly adopted. Circumstances, however, shortly afterwards materially changed; money could be obtained only with great difficulty; our calls for a considerable period were paid slowly and reluctantly, and not frequently without remonstrances; on many of the shares we were unable to obtain any payment at all, and the consequence of this state of things is that we are this day about to call upon you to sanction the forfeiture of a certain number of shares thus circumstanced. The course which then appeared expedient to the Directors was to complete the line by successive portions; and we determined to apply ourselves in the first instance to the completion of that part which, by common consent, will be the most profitable portion of the whole line—namely, that between Newport and Swansea, and to complete afterwards, and almost at the same time, so that they should open almost simultaneously, that portion from Grange Court to Newport, and having thus accomplished this, to apply ourselves to the remaining part of the line from Swansea to the western extremity.

# OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

## SOUTH AFRICA

### Traffic Increases

In December and January more than 150 long-distance special passenger trains and 36 additional trains for non-European traffic, which is still increasing, were run.

In 1948, 4,744,918 wagons were loaded, an increase of 223,342 over the previous year. The largest number of wagons loaded in one week was 97,184 in the week ended September 1, 1948.

Coal output from the collieries for the five weeks ended January 1, totalled 1,883,647 tons, 37,772 tons more than in the corresponding period of last year. Of this amount 142,469 tons were shipped, 90,294 tons less than last year. During the same period 435,870 tons of import goods were cleared by road and rail from the ports.

### Air Link with Egypt

The first direct scheduled air service between South Africa and Egypt began on January 30. The return journey by Sky-master takes three days, including night stops at Khartoum in each direction, and stops at Nairobi for refuelling. The regional air service between Johannesburg and Lourenço Marques was extended to Durban from February 14. The service will continue to be operated on Mondays and Fridays.

### Rolling Stock

In December, 1948, local industry supplied 168 of the 446 new wagons placed in service. The total number placed in service in November was 494. These two months represented considerable advances over previous months (230 in October and 237 in September). Efforts to increase the number of goods wagons are having satisfactory results and a further improvement is expected. Nine petrol tank wagons, built at the Pietermaritzburg railway workshops, were placed in service during December.

Ten electric shunting locomotives have been ordered from Metropolitan-Vickers

Electrical Export Co. Ltd.; the total value of the order is £185,000. Delivery will begin in April, 1951, and it is proposed to use the locomotives in Johannesburg, Cape Town, and Durban as part of the campaign to reduce the smoke nuisance in these cities.

During 1948 the railways placed 3,389 goods wagons, 103 passenger coaches, 94 steam locomotives, and 107 electric units in service. Fifty of the steam locomotives were class 15-F main-line engines, 42 were class 19-D branch-line engines, and two were S1 shunting engines which were built in the Administration's workshops at Salt River.

The electric units were all of the powerful E3 type, used for hauling main-line passenger and goods trains, and the coaching stock was all for electrified suburban sections. Twenty of these were motor coaches and the remainder plain trailers. The majority of the goods wagons, numbering 2,776, were bogies, the remainder being made up of 490 four-wheel wagons and 123 narrow-gauge wagons.

## CANADA

### Rate Increase Sought

The Canadian Pacific Railway asked the Board of Transport Commissioners to authorise an immediate 2 per cent. general increase in freight rates if it removes the "mountain differential" rate. This request was made at the conclusion of the argument for the company in the application by British Columbia for removal of the mountain rate, which is 1½ times the Prairie scale. Loss of revenue of some \$2,500,000 a year, without an accompanying reduction in expenses, C.P.R. counsel said, might well be termed a "disaster" to the company. If the board were to take off the rate it was most important that this action be accompanied by a simultaneous general 2 per cent. increase for all Canada.

At present the C.P.R. and the other rail-

ways have before the Board an application for a general 20 per cent. increase, to which the 2 per cent. proposal apparently would be additional. The board was urged not to remove the mountain rate now, but reject the B.C. application in the general freight rate investigation which the Cabinet has instructed the Board to undertake.

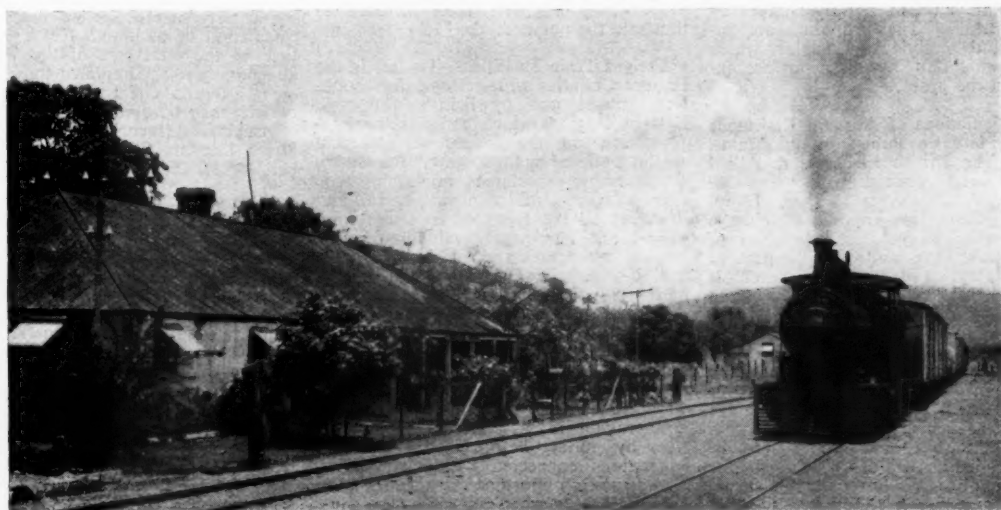
### Extension of the Pacific Great Eastern Railway

In our January 14 issue, it was stated that the proposed extension of this railway would have to be financed by the Government of British Columbia. It has now been announced that the Province is embarking on a \$90,000,000 industrial expansion programme, to be carried out during the next five years, including the extension of the P.G.E. from Quesnel, its present northern terminus, to Prince George, on the Canadian National line to Prince Rupert, a deep water harbour. Further extension of the railway to tap the Peace River area is under consideration.

### The Health of the Railways

Mr. Alistair Fraser, Vice-President, Traffic, Canadian National Railways, in replying to a toast to the railways at the 41st annual dinner in Montreal of the Canadian Railway Club, said that Canadian railways had come through various tests of their basic efficiency and their practical resiliency. Their experience had been ripened, their technique improved, and their equipment modernised. They stood at the highest point with respect to man, material, and methods. Their health was good. Mr. Fraser warned that to be merely in current good health was not enough. He said: "I am sure I shall in no way go beyond what you intended if I assume that in honouring the railways your intention included the very firm desire that the continued health of the railways shall be ensured by their receiving adequate means with which to sustain it. The railways cannot maintain their good health if inadequately nourished, just as the finest athlete could not carry on a hunger fast indefinitely. Nor could he maintain himself even in fairly good

## A Link in the Australian North-South Overland Route



A train at Adelaide River Station on the 3 ft. 6 in. gauge line of the North Australian Railway between Darwin and Birdum

health if under-nourished, and so it was with the railways."

Mr. Fraser emphasised that "competition and the struggle for business will become more pronounced as we move rapidly from shortages to surpluses. We cannot rest on past achievements to ensure us public goodwill and patronage. To be successful, we must work harder and provide better transportation service."

## UNITED STATES

### The Alaska Railroad

Further to the report in our November 19, 1948, issue, on the rehabilitation of this line it is learned that some 200 miles of relaying, resleepering, rebalasting, bank and cutting widening, regrading, and realignment and bridge rebuilding have been carried out. The latter work has included the replacement of timber trestle viaducts by steel truss spans carried on steel trestle tower piers.

The programme for the third year, beginning this Spring, will include the replacement of over 100 miles of 70-lb. by 115-lb. track, the raising of the formation and its widening from 16 ft. to 20 ft., the improvement of curvature by the insertion of standard American Railway Engineering Association transi-

tions and superelevation, the raising of bridges and extension of culverts to suit the raised formation, and the provision of additional culverts. To protect the embankments from river erosion treated timber pile cribbing is being used. In some cases the permanent way gangs consist of Indian women.

## GERMANY

### New Bridges

In the bi-zonal budget for 1949 the amount of 2,000,000 Deutsche Mark has been earmarked for the building of a combined railway and motor road bridge across the River Elbe connecting Lauenburg (Elbe) on its northern bank with Artlenburg opposite. According to a recent statement by the President of Ministers of the province of Schleswig-Holstein (British zone), the bridge is regarded as of paramount importance for the improvement of the economic relations between Schleswig-Holstein in the north and the Niedersachsen province in the south. Lauenburg is some 25 miles upstream of Hamburg and at present the temporary terminus of the main line from Lübeck, 38½ miles north. The former railway bridge carrying the line from

Lauenburg to Hohnstorf, about 4,500 ft. to the south, was destroyed during the war, and railway passengers are ferried across the river to connect with a shuttle service between Hohnstorf and Lüneburg, about 10 miles.

Artlenburg, now envisaged as the southern bridgehead, is close to Hohnstorf and, like Lauenburg, served by steamers which ply between Hamburg and Hitzacker, on the western bank of the Elbe opposite Boizenburg in the Russian zone of occupation.

### Rolling Stock Repairs

With reference to the paragraph on page 95 of our January 28 issue, we are informed that there has been no cancellation of repairs to coaches because of the price factor; such reductions as have been made have been because of the impossibility of keeping to the schedule of deliveries, principally as a result of the heavy repairs involved. Reference to this matter was made in our March 4 issue in a letter from the Société Anglo-Franco-Belge des Ateliers de la Croyere, Seneffe et Godarville. No order for the repair of coaches has been placed in Switzerland. That country is concerned only with the repair of wagons for Germany. This contract is still in force.

## Publications Received

**The Problem of Railway Passenger Fares and Train Services.** By J. H. Laundy. London: *The Railway Gazette*, 33, Tothill Street, S.W.1. 8½ in. x 5½ in. 18 pp. Paper covers. Price 1s.—The author of this booklet was formerly Audit Accountant, Southern Railway. He has evolved a scheme which he suggests would popularise rail travel by providing reasonable train services at reasonable fares. The fundamental idea is to divide train services into two classes, (a) ordinary, with an overall average speed of not more than 35 m.p.h., and (b) express, where the speed is 50 m.p.h. or more. Broadly, fares by ordinary trains would be lower than existing charges; fares by express trains would be higher for return journeys. Cheap fare facilities would be confined to special excursion trains, and fares charged by London Transport and the competing bus companies would be raised to the level of railway charges by ordinary train. The proposals are ingenious and embody principles which merit examination by all who are interested in the problem.

**Load Conditions of Arc and Resistance Welding Plant on Public Supply Mains.** London: The British Electrical & Allied Manufacturers' Association, 36 and 38, Kingsway, W.C.2. 8½ in. x 5½ in. 12 pp. Price 1s.—Conditions imposed by electric supply authorities on the installation of welding plant have tended, in the past, to limit the adoption of this process, which is recognised as economising in steel and aiding efficiency in production. Discussions were held, therefore, between B.E.A.M.A. and the five pre-nationalisation electricity supply associations, and the joint memorandum then prepared is published in the present booklet, with the assent of the British Electricity Authority. Part I discusses arc welding loads. Recommended sizes of capacitors for power factor correction with the usual range of equipment are tabulated, together with the reductions attained thereby in transformer primary current. It is suggested that in many cases the power factor

of an arc welding installation is high enough to justify applying normal power tariff considerations. Part 2, dealing with resistance welding, similarly demonstrates a method of assessing power requirements that is fair both to the consumer and the supply undertaking.

**The Locomotive Engineman's & Fireman's Examination Guide.** Revised Edition. By Maurice George Vaughan and revised by S. Smith. Exeter: W. Chudley & Son Ltd., 11/14, Holloway Street. Illustrated. Price 3s. 6d.—In its twenty-first edition, this guide has been expanded by additional letterpress and designs, though the sequence has been disturbed as little as possible. Mr. Smith, who has revised the book, has taken an active part in enginemen's improvement class instruction and has followed Mr. Vaughan's example, by explaining a variety of locomotive items in concise language. For the benefit of the learner, simple diagrams have been included to illustrate the points made.

**Freight Train Facilities.**—Traders in the Eastern Counties will welcome this booklet brought out by British Railways, Eastern Region, which contains brief information on the freight services and facilities offered by the Region. It includes, for example, specimen quotations for farm and household removals by rail and describes all the types of containers and their uses. Particularly valuable are the lists of the names and addresses of District Commercial Officers of the Region and of all Eastern Region goods stations and depots, giving the crane power available at each.

**Selling Passenger Travel.**—This booklet has been produced by the Eastern Region of British Railways with the aim of encouraging railway service representatives by putting before them ideas and suggestions connected with their duties. The issue is opportune as the situation again is arising when railway agents must go all out to retain existing custom and gain new customers, and a new spirit of salesmanship therefore is called for. The

booklet is for the use of railway services representatives, stationmasters, and passenger agents, and is not for general distribution to the public.

**Aluminium Paste for Industrial Painting.**—This brochure deals with applications of Standard BA Aluminium paste to various forms of industrial painting. Aluminium paste contains about one-third its weight of mineral spirits and is clean to handle and easier to mix with paint vehicles. One section describes the correct techniques for treating metals and non-metallic surfaces with aluminium paint. The brochure may be obtained from the British Aluminium Co. Ltd., Salisbury House, London Wall, London, E.C.2.

**Professional Practice in Engineering.**—The Society of Engineers (Incorporated) has published a useful 12-page booklet setting out a professional code for qualified engineers engaged in consulting work. A particularly helpful section deals with the calculation of minimum fees as a percentage of the total cost of the work. An appendix gives a simplified form of agreement between client and engineer. The booklet may be obtained from the Society of Engineers (Incorporated), 17, Victoria Street, London, S.W.1, price 2s. (to members) or 3s. 6d. (to non-members).

**A Handbook on Cutting Oils.**—Sternol Limited has issued an attractively printed brochure on cutting oils and coolants. It describes the properties of both soluble and straight cutting oils, including those of straight mineral derivation, mixtures of mineral and fatty oils, and sulphurated or chlorinated mixtures of mineral and fatty oils. It is emphasised that the cheapest soluble oils are rarely the most economical in use, for the cheapest can be diluted with only small quantities of water, whereas good quality oils can be mixed in the proportion of one part to 20/25 parts water for general machining or, for grinding, with 50/60 parts water. Copies may be obtained free from Sternol Limited (Industrial Specialities Department), Royal London House, Finsbury Square, London, E.C.2.



### Toton Up Yard Modernisation Scheme, L.M.R.

*The first stage of this scheme, concerning light repairs to wagons, has been recently completed*

**S**TEADY progress was made during 1948 by the London Midland Region of British Railways with the considerable amount of engineering work entailed in the scheme for remodelling and modernising Toton Up Yard. This scheme, which was sanctioned early in that year, was described in our issue of April 9, 1948. Arrangements were made to carry out the reconstruction in five main engineering stages.

The first of these, which was brought into use on January 3, consists of a new fan of sidings between the River Erewash and Toton East Junction on which light repairs are undertaken by wagon repair firms to those vehicles, formerly privately owned, which from January 1, 1948, were

taken over by British Railways. Also included are those wagons remaining in private ownership.

It was necessary to provide a new location for this work as the existing site was required for the installation of hydraulic railbrakes under the Toton Up Yard mechanisation scheme.

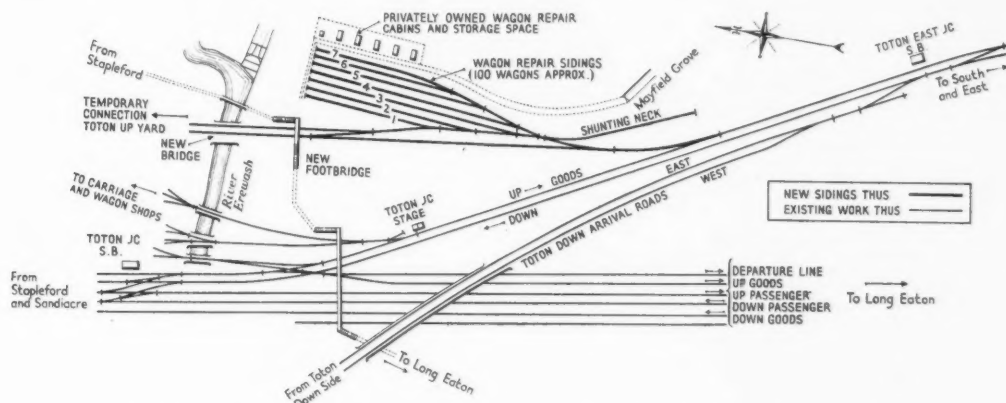
The accompanying drawing illustrates the new wagon repair site and rail connection with the main line and Toton Up Yard; also a new bridge erected over the River Erewash which eventually will carry three tracks. This 35-ft. span deck-type bridge is of pre-cast reinforced concrete beam construction.

In the nine months since the work was commenced in March, 1948, to the end of

the year, 320,000 cu. yd. of earth have been moved and 2,000 lin. yd. of permanent way drains laid in preparing the new yard formation for the first and subsequent stages.

This earthwork has been carried out in areas not occupied by sidings, etc., outside the existing yard. Progress has also been made in the construction of a new engineer's depot, hump room, control tower, shunters' building and a signal box.

The remaining work, which involves taking up almost the whole of the present sidings layout and laying in 27 miles of new sidings, will be carried out in sections, so that at no time will the yard be completely closed to traffic. Some easement will be afforded, however, by a detailed scheme of "traffic stage planning" which has been drawn up, whereby a certain amount of assistance in sorting and marshalling to the relief of Toton Up Yard is being carried out temporarily at other yards.



*Wagon repair sidings and connections for Toton Up Yard, London Midland Region*

## Warning Signs at Open Crossings

AS a result of an accident at an ungated level crossing, consideration has been given to the best form of road warning notices at such points. It is often difficult for a road user to be certain of the exact point at which the railway crosses the road, more particularly in cases where the general alignment of the railway is obscured by hedges.

In view of the importance of uniformity of signs, that is, that the same sign should convey the same meaning in all places, the Minister of Transport has laid down that in future the standard arrangements shall be follow:—

(a) The standard advance road warning sign, a picture of locomotive with the wording "Crossing No Gates," the whole surmounted by a red triangle. The provision of this sign is the responsibility of the highway authority.

(b) An additional sign, to be located actually at the crossing, worded "Trains Cross Here," also surmounted by a red triangle, and illuminated or provided with reflecting lenses, in cases where there is railway traffic after dark.

Railways have been asked to replace their existing signs as soon as possible, and this has been done at all the open crossings on the Derwent Valley Light Railway. The accompanying illus-

tration shows the new signs in position at Broadhighway open crossing, Wheldrake, on the Derwent Valley Light Railway.

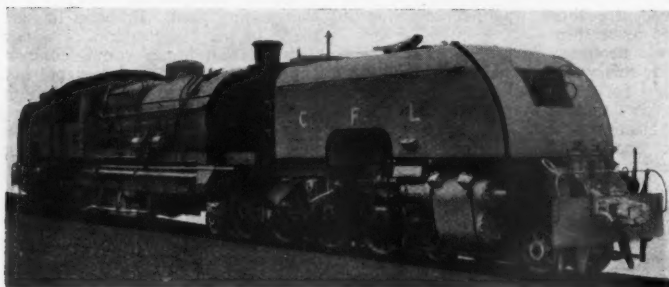
**PRODUCTION RECORDS BY HADFIELD.**—Lord Dudley Gordon, Chairman of Hadfields Limited, speaking at the recent annual general meeting, said that brilliant performance of the iron and steel industry last year, when it had passed the set target of 14½ million tons, was well known to all. Hadfields had played its allotted part in achieving this target and also had achieved an all-time record. Threat of nationalisation had not resulted in the company hesitating to proceed with important development plans involving an expenditure of no less than £4,000,000 in the next five years. In the past it had been a sound rule that business concerns should carry on their undertakings without regard to politics, which principle remained sound so long as the Government was content to carry out its function of governing the country, but now that the Government of the day had followed the policy of the political party from which it was drawn, the position was entirely changed, and the decision of their board was that it was their duty to oppose by every proper means the passage of the Iron & Steel Bill. The financial results of Hadfields Limited for the past year were given in our February 18 issue.



*Warning sign on the Derwent Valley Light Railway*

## British-Built Locomotives for Portuguese West Africa

*Powerful articulated units of light axle-load  
for the metre-gauge Luanda Railway*



THE full and continued development of African territories which is now in process must embrace the two important Portuguese colonies of Angola and Mozambique. The Portuguese Government is aware of the likelihood of a considerable increase in traffics passing through Angola and to the importance of the development of its own territory, and is therefore taking measures designed to ensure that transport facilities are able to meet any needs which may arise. Little has been written regarding Angola, which has a greater area than the Union of South Africa. Its terrain ranges in the north, from part of the Congo Basin, with rich tropical vegetation, to desert conditions in the south. The coastal lowland stretching for over 1,000 miles along the Atlantic Coast is from 100 to 200 miles in depth. Then the country rises steeply to a height in parts of over 8,000 ft. to the plateau of the interior.

There are two major railway systems running from the coastal ports into the interior. The northern part of the territory is fed by the Luanda Railway with some 381 miles of metre-gauge line running inland from the port and capital of the colony, Luanda. The weight of rail laid is 60 lb. per yd., and there are curves of 100 metres radius and a maximum grade of 1 in 33. Some severe sections are encountered in the climb from the coastal belt to the plateau. About 50 locomotives, of various wheel arrangements with 4-8-0 predominating, are in operation on the railway.

Some impression of the increasing traffic being handled through the ports of Angola may be judged by figures recently published which show that imports and exports totalled some 440,000 tons in 1947, an increase of nearly 20 per cent. over 1938. This railway will be increasingly occupied in the handling of the products

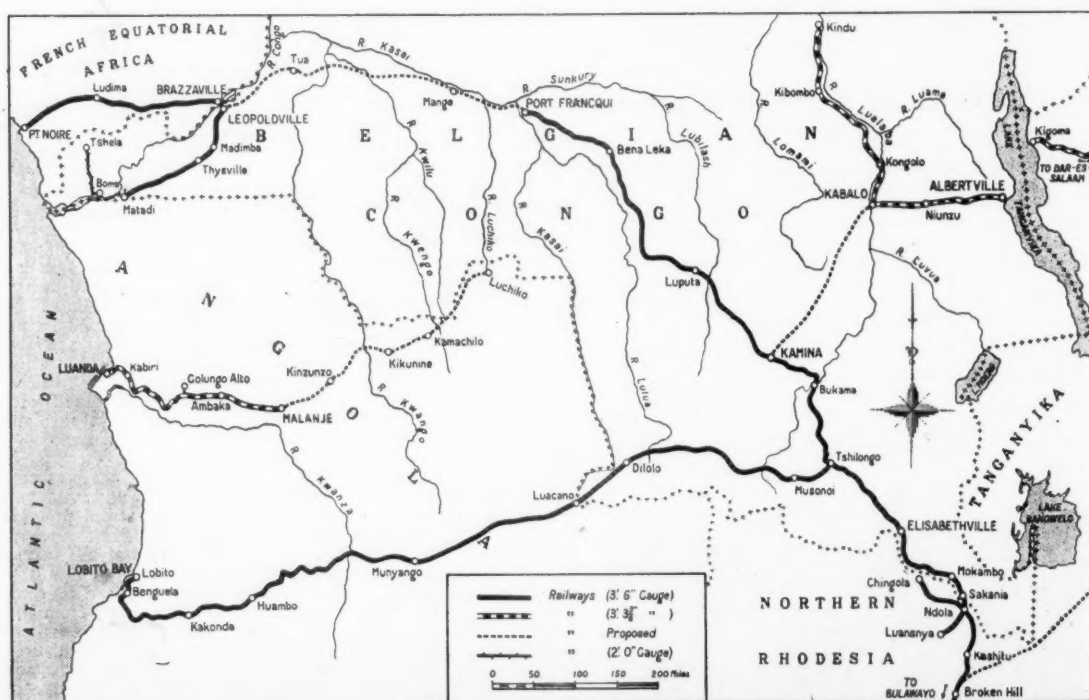
of the northern part of the territory which include coffee, oil seeds, manioc, sugar, cotton, and grain, and a new branch line is projected to handle increasing crops.

In 1947, the Portuguese Purchasing Commission placed an order with Beyer Peacock & Co. Ltd., for six Beyer-Garratt locomotives for this railway to enable increased traffic demands to be met. The other principal railway system, the Benguela Railway, 3 ft. 6 in. gauge, runs inland from Lobito. Beyer-Garratt locomotives were supplied to this railway in 1926 and a further twelve are on order.

So that earlier delivery could be effected the new 4-8-2 + 2-8-4 engines have been based on the successful light type standard metre-gauge Beyer-Garratt locomotive which was built for Burma and the Far East.

### General Design

In 1945 Beyer Peacock & Co. Ltd. designed and built 20 light type war standard Beyer-Garratt locomotives for the Far East to the order of the Ministry of Supply. This was a new design to provide a maximum tractive effort for the metre gauge on a 10-ton axle-load and yet to conform to the restricted loading gauge on certain railways in India. At the same time the design was to be such that the engines could be successfully used on other metre-gauge railways in accordance with strategic requirements. These locomotives were eventually placed in operation on the Bengal-Assam Railway, Burma Railway, and also the Kenya & Uganda Railway (now part of the East African Railways). They proved very successful, partly because of ample boiler capacity and also because the detailed design was simple and accessible, and lent itself to varying standards of maintenance. The locomotives were described and illustrated in our June 29, 1945, issue.



Principal railways of Angola, showing relation to adjoining territories

The need for increased water supplies and oil fuel, coupled with the fact that on the Luanda Railway it was possible to allow for an increased axle-load, has brought the new engines to a maximum axle-load of 11½ tons. It has also been possible to increase the height and width

has been given to the design and location of the oil-burning equipment controls. Two levers on the notched sector control the main oil valve and the front air doors.

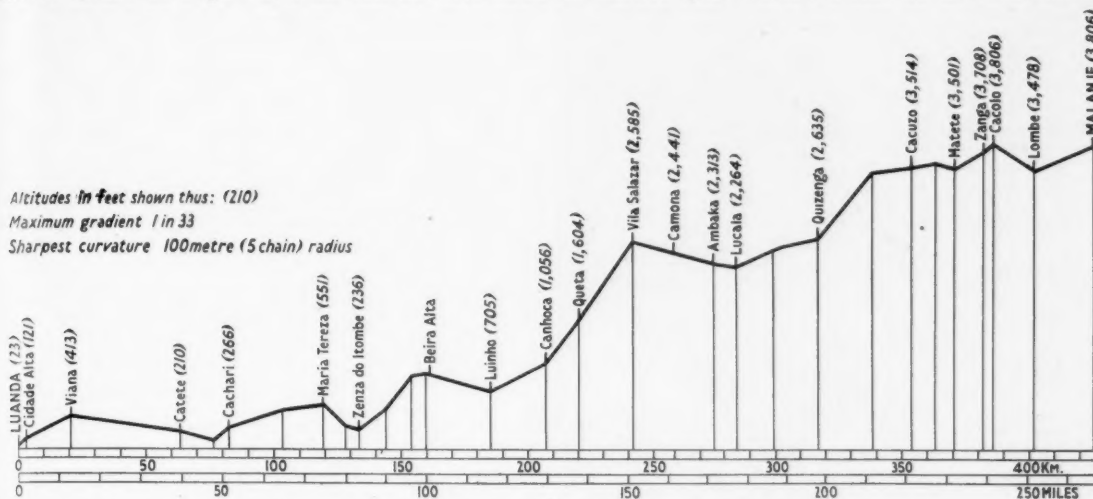
The general construction of the engine units, including the main plate frames with cast-steel horn blocks and cast-iron cylin-

the main pistons are solid cast-iron with two narrow rings. The simple and very successful arrangement of the Walschaerts valve gear has been retained with a valve travel of 5½ in., giving a maximum cut-off in full gear of some 75 per cent. Bypass valves are fitted on the steam chest and

Altitudes in feet shown thus: (210)

Maximum gradient 1 in 33

Sharpest curvature 100metre (5chain) radius



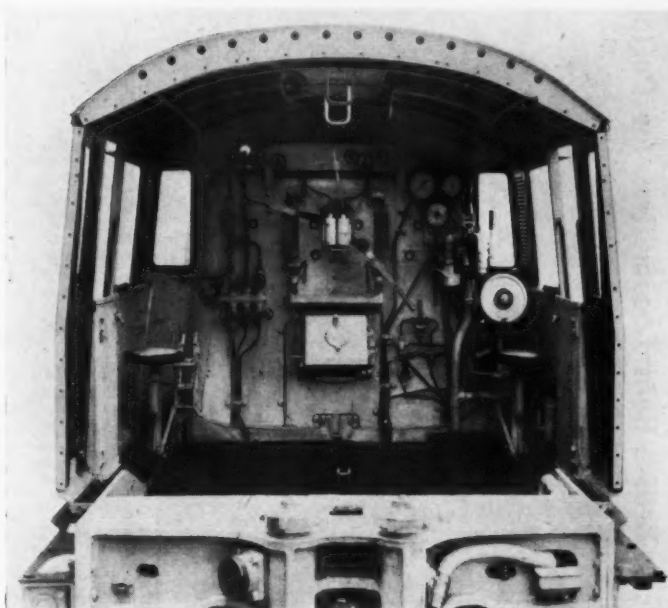
Gradient profile of Luanda Railway between Luanda and Malanje

of the cab to the limits of the Luanda loading gauge as the previous restrictions no longer applied. Many details have naturally been made to conform to the standards and requirements of this individual railway.

#### Boiler

Ample proportions have been retained for the boiler although a Belpaire firebox is now provided and two thermic syphons have been included. The grate area is exceptional on so low an axle-load. The inner firebox plates are of Colville's firebox quality steel, with riveted construction and welded fire hole. The four front rows of roof stays are flexible, as are also those in the breaking zones on the sides, back and throat plate and also around the thermic syphon neck. The water space stays are of Yorkshire iron. The superheater header and elements are of the latest MLS type and complete with anti-vacuum valve supplied by the Superheater Company. Ample provision has been made for washing out and two Everlasting blow-off cocks are fitted, one on the firebox throat plate and one on the mud collector on the bottom of the front barrel plate. The Zara type regulator is located in the dome. Two Gresham & Craven No. 10 injectors, fitted with No. 11 Simplex cones, deliver through top feed clack boxes and the steam turret is located outside the cab with steam supplied by internal pipe from the dome; all auxiliaries are fed from the turret. Steam to the injectors is controlled through quick-acting steam valves located on the side of the firebox. Recent practice has been followed in locating the injectors under the boiler frame in front of the firebox; the overflow pipe is carried back to bring it in view of the engine crew.

The smokebox has a bolted front plate with the small dished type of door fitted with dogs and an asbestos joint ring. There are two safety valves of the Ross pop type. The normal flat type of oil burner is at the front of the firebox. The ample flame pan has side air doors controlled from the cab. Special attention



General view of cab arrangement

ders, is in accordance with the design of the previous type. The outer coupled wheels have flangeless tyres and all tyres are secured by Gibson rings. The bearing springs are underhung and each unit is arranged on a five point suspension system. Adjustable spring links are provided on the bogie springs only. The bronze coupled axleboxes are fitted with Ajax grease lubrication, the horn blocks having liners and adjustable wedges. Rigid construction for the whole unit is ensured by the provision of cast-steel frame stretchers. The piston valves are 8½ in. dia. Each head is fitted with four narrow rings, and

relief valves to each cylinder cover. Britallic metallic packing has been included for the piston rods, and the principle of keeping the slide bars as high as possible above ground has been followed by using the Laird type of underslung crosshead. The big ends of the connecting rods have split bearings with wedge and bolt adjustment; the coupling rods have solid bushes lined with white metal. Pivot centres are of the latest Bayer Peacock patent self-adjusting type with lubrication from the mechanical lubricator.

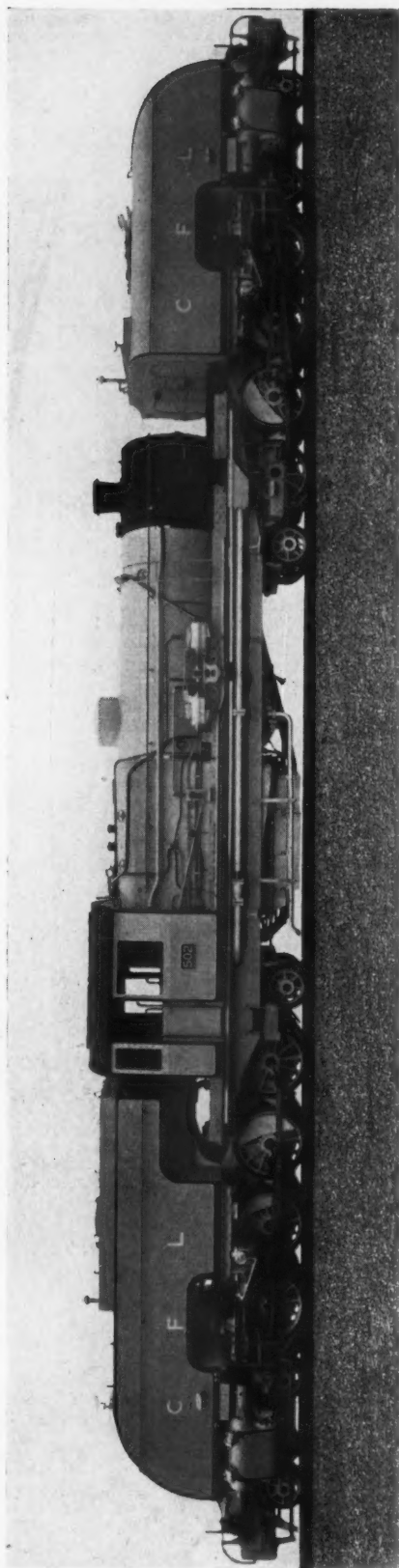
In accordance with the railways' stand-

(Continued on page 303)

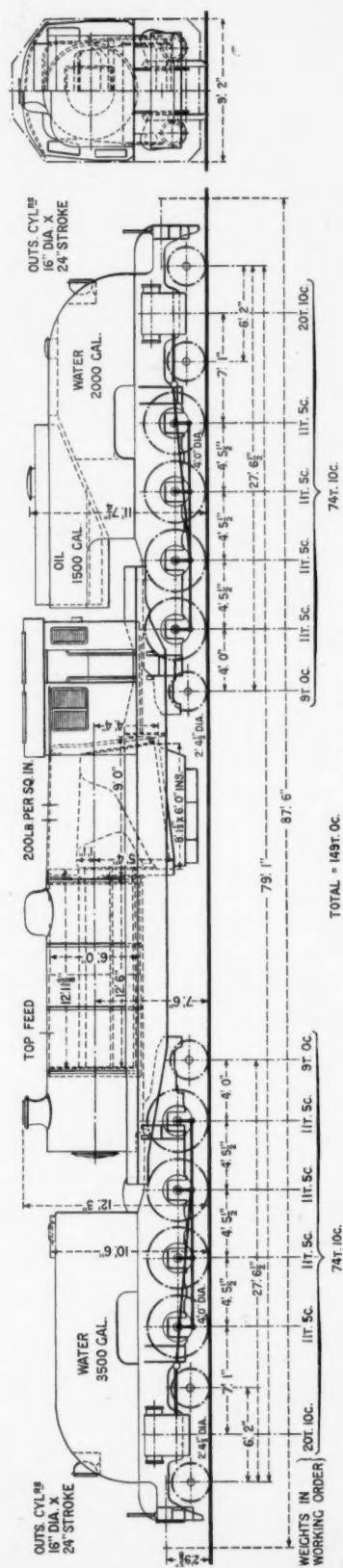


## British-Built Locomotives for Portuguese West Africa

(See article on page 292)



*Full side view of metre-gauge Beyer-Garratt 4-8-2+2-8-4 locomotive for the Luanda Railway*



*Diagram showing principal dimensions and weights*

## Design for a High-Speed Lightweight Train

*Each coach will have a single axle and a single pair of wheels located at the rear with the forward end coupled to the preceding coach*



ONE of the exhibits at the Chicago Railroad Fair last year which attracted considerable attention was a full-size model of a new design of lightweight coach designed for speeds up to 150 m.p.h. This high speed will be possible because, with this smaller coach, which weighs only one quarter as much per passenger as a coach of conventional design, centre of gravity is much lower.

### Based on a Spanish Design

The designer of the coach is Mr. Kenneth A. Browne, Research Consultant to the Chesapeake & Ohio Railway, who based his design on the lightweight diesel train built by the Spanish National Railways and operated successfully during the war. The Spanish train, which was described in our issue of December 3, 1943, and illustrated in *Diesel Railway Traction* for April, 1945, consists of a Ganz diesel power unit and seven trailers. Tare weight amounted to about 200 lb. a passenger seat as compared with 2,500 lb. for standard main-line stock.

The coaches are about one-third the length of the conventional types, being about 31 ft. long, and they save 6 in. in lateral clearance on curves, adding to inside width and increasing bedroom and dining car space. The floors are 2½ ft. nearer the rails, and the roofs are lower by 3 ft. In place of standard 36-in. wheels these smaller coaches have 28-in. wheels with rubber centres.

The centre of gravity is lower by 18 in. by consolidating in an equipment coach at the front of the train the electric generators, batteries, refrigerating apparatus, steam fittings, water tanks, and mis-

cellaneous gear that now clutter the underside of passenger coaches. Each coach has a single axle and single pair of wheels located at the rear. The forward support is provided by a coupling to the preceding coach. Thus the train will form a single integrated assembly and yet retain the flexibility now associated with conventional cars.

Use of trailing wheels only takes into consideration the de-railing force generated on lead wheels by standard rail bogies. When the leading axle of a bogie meets a curve at high speed the wheel flange is forced up against the rail and tends to climb up and over the rail. The flanges of the trailing or rear wheels tend to grip the rail. Elimination of bogies automatically improves the riding characteristics with this type of coach and reduces noise and vibration.

Wheel suspension and springs are designed so that the train can automatically bank itself into a curve. This feature is

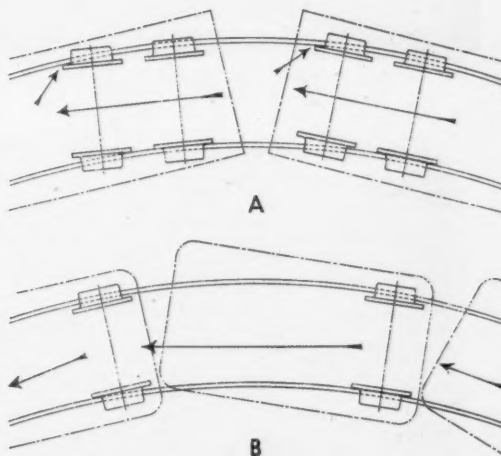
expected to permit a 50 per cent. increase in speed on curves without discomfort to passengers. Standard coaches, because of bogie construction, tend to roll out on curves if operated at high speeds, the resultant tilting motion being very disagreeable at times.

Placing the water, electric, cooling, and heating systems at the front of the train, requires a departure from present coupling standards. The diaphragm and all service lines disconnect as the coaches part and rejoin automatically on coupling. Each coach has its own front dolly axle and wheels, which are lowered to support the car when it is uncoupled to allow normal shunting operations. The new train has been designed to meet all safety requirements of the Association of American Railroads and the United States Mail.

### Advantages of Light Weight

Weight and power required in the locomotive will be reduced proportionately, which will mean savings all along the line, i.e., from the mass production of the coaches down to fuel, maintenance, repairs, and wear. Starting and stopping will be quicker and smoother. The forthcoming train is expected to attain a speed of 90 m.p.h. from a stationary position in 4 min. as compared with the 9 min. or more now required by the largest locomotive hauling a standard train of similar capacity.

The full-scale model of the coaches exhibited at the Chicago Railroad Fair is



Showing the difference between the conventional bogie (A) and the new design (B) in which the front axles have been eliminated

now being used for experimental engineering purposes. Later, orders will be placed for experimental coaches, and a test train should be on the rails by 1950.

**PROFESSIONAL ENGINEERS APPOINTMENTS BUREAU.**—During 1948 the average number of engineers on the register of the Professional Engineers' Appointments Bureau was 559. Of these, 106 were primarily civil, 252 mechanical, and 201 electrical engineers. This compares with an average number of 634 applicants on the register in 1947. It has been found that more than 90 per cent. of the applicants registered during the year were in employment and that the majority of

those without employment were young men requiring practical training or men over 45 years of age. Young men with engineering degrees were usually easy to place. The number of notifications of vacancies was satisfactory and totalled 1,126 as compared with 1,048 in 1947. The demand was especially heavy for men with good all-round experience between the ages of 30 and 35. Since the Bureau commenced operations at the end of 1945 it has found appointments for over 580

engineers, and during the year under review appointment fees totalling £1,048 were received from 171 applicants. This slightly exceeds the amount received in 1946 and is slightly below that for 1947. A considerable proportion of the overseas vacancies related to posts in the Far East and Middle East, but, owing to the good demand for engineers in this country at the present time, few of the applicants for positions were prepared to take an interest in these vacancies.

## Design for a High-Speed Lightweight Train

(See article on previous page)



*Door hinged to expose its outside to the side of the vestibule when opened*



*Diaphragm and service lines disconnect as the coaches part and rejoin automatically on coupling*

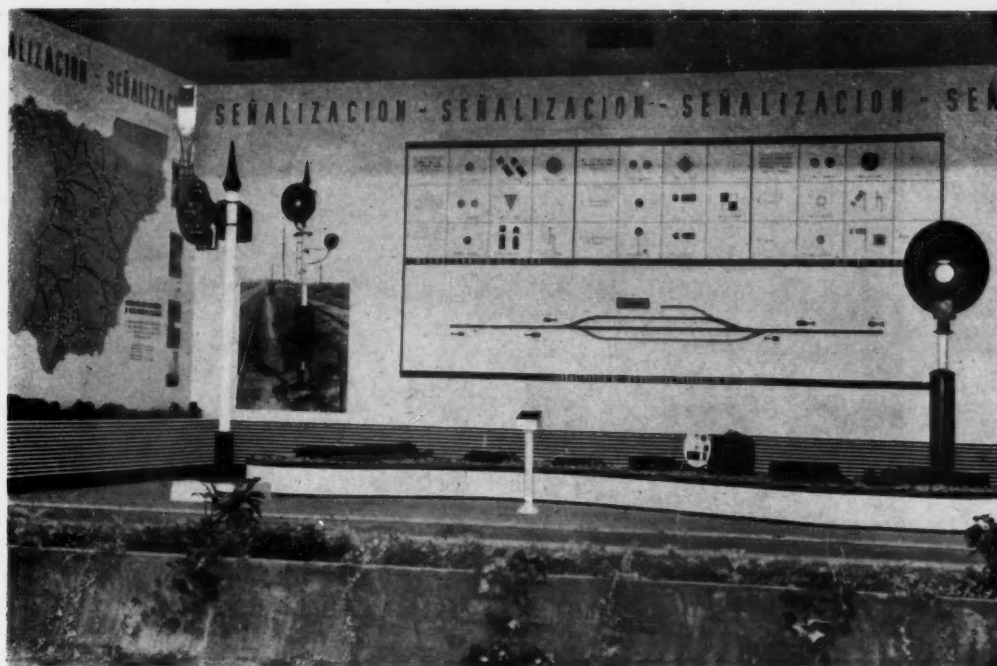


*Full-scale models at the Chicago Railroad Fair of passenger coaches which will make up a new lightweight train for the Chesapeake & Ohio Railway*

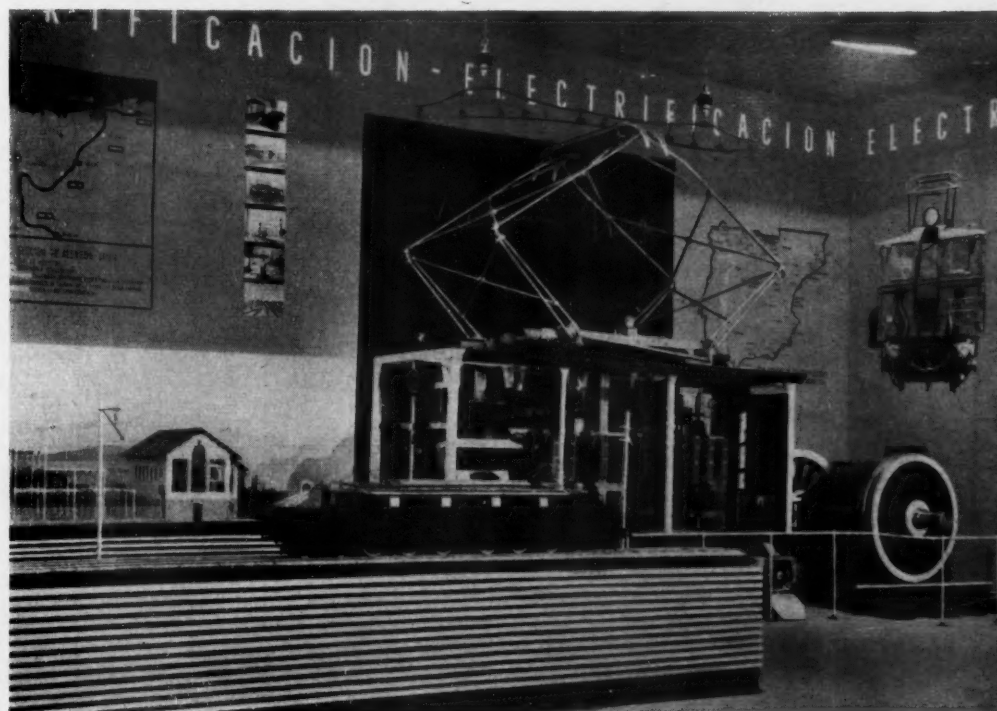


# Spanish Railways Centenary Exhibition, Barcelona

(See paragraphs in our December 10 and 17, 1948, issues)



Signalling stand at the Barcelona exhibition, showing diagrams and models of installations



Electrification stand, showing a model of an electric locomotive of the Spanish National Railways, and a reproduction of the high-tension compartment of an electric locomotive

## Trackwork on the Swiss Federal Railways



*War-time leeway in rail renewal and track maintenance is being made up steadily*



*Steel sleepers, found especially suitable on sharp curves, form 63 per cent. of the total used on the S.F.R.*

*Photos]*

*["The Swiss Federal Railways Today"]*

## RAILWAY NEWS SECTION

## PERSONAL

Mr. R. Dell, Signal Engineer, London Transport Executive, has been elected President of the Institution of Railway Signal Engineers.

Sir Robert Sinclair, Deputy-President of the Federation of British Industries, has been nominated President.

Mr. P. G. Stone Clark and Mr. W. H. F. Mepsted have been appointed Directors of Maidstone & District Motor Services Limited.

Sir W. Charles Wright has resigned from the boards of Guest Keen Baldwins Iron & Steel Co. Ltd., and subsidiary companies.

Sir Alexander McColl, Chairman of the Superheater Co. Ltd., sailed on March 12 on a business trip to Argentina. Sir Alexander McColl is also a Director of the Vacuum Oil Co. Ltd., and Glenfield & Kennedy Limited.

Mr. H. L. Satchell, Manager of the B.T.H. Rugby Works, and its associated factories at Peterborough, Leicester (Blackbird Road), and Nelson (Lancashire), has been appointed a Director of the British Thomson-Houston Co. Ltd.

We regret to record the death on March 8, at the age of 67, of Mr. A. J. Insall, who retired in 1942 from the position of Assistant Divisional Superintendent, Birmingham, Great Western Railway.

SCOTTISH REGION  
APPOINTMENTS

The following appointments are announced in the Scottish Region, British Railways:—

Mr. C. O. Jenkin-Jones, Assistant District Operating Superintendent, Burntisland, to be Assistant District Operating Superintendent Glasgow.

Mr. W. Jackson, Assistant to District Operating Superintendent, Edinburgh, to be Assistant District Operating Superintendent, Burntisland.

Mr. A. J. Lomas, hitherto General Manager, Central Region, has been appointed Vice-President, Central Region, Canadian National Railways, with headquarters at Toronto, in succession to the late Mr. J. F. Pringle.

**LONDON MIDLAND REGION STAFF CHANGES**  
The following staff changes are announced in the London Midland Region, British Railways:—

Mr. A. Higginson, Acting District Goods Manager, Western Region, Liverpool, to be District Commercial Superintendent, Barrow.

Mr. R. C. Pickerell, Head Office Inspector (Freight Services), Operating Superintendent's Office, Euston, to be Assistant (Freight Services), Marshalling Yard Modernisation, Operating Superintendent's Office, Euston.

Mr. T. C. Courtney, M.E., Chief Engineering Adviser, Department of Local Government, Eire, who, as recorded in our February 25 issue, has been appointed Chairman of Coras Iompair Eireann (Irish Transport Company), was born at Cork in 1894. He was educated at the North Monastery and Presentation Brothers' College, and at University College, Cork, where he took his B.E. (Civil) degree in 1916. Later that year he

Inspecting Officer to the Department of Industry & Commerce for the past ten years.

The board of the Great Northern Railway (Ireland), at the request of that of Coras Iompair Eireann, has agreed to make available to C.I.E., in an advisory capacity, the services of its General Manager, Mr. George B. Howden, until such time as the legislation as outlined in the statement of February 4 by the Government of Eire shall have been enacted.



Mr. T. C. Courtney

Appointed Chairman, Coras Iompair Eireann

was appointed Assistant in the Chief Engineer's Office, Cork, Bandon & South Coast Railway. In 1917 he joined the firm of Henry Ford & Son in connection with the building of its assembly plant at Cork; and in the next year transferred to Harland & Wolff and was concerned with the construction of a new shipbuilding yard at Belfast. He returned to Cork for the completion of the Ford works, where he remained until he joined the National Army in 1922. He held the rank of Major, and was largely responsible for the organisation of the Corps of Engineers, before transferring to the Department of Local Government as Engineering Inspector in 1925. In 1930 he was appointed County Surveyor for Tipperary (North Riding), and in 1934 became Chief Engineering Adviser, Department of Local Government, which position he relinquishes on his present appointment. Mr. Courtney has conducted numerous inquiries on behalf of the Government, and has been Railway

We regret to record the death, at the age of 70, of Mr. T. H. Watermeyer, M.I.C.E., who was General Manager of the South African Railways from 1933 to 1941. He was born at Graaff-Reinet in 1879, and was educated in England, where he afterwards served an engineering pupilage. He entered the service of the Cape Government Railways in 1902, and, after experience on various construction works, was placed, at the age of 31, in charge of the George-Oudtshoorn construction, which called for considerable engineering skill. He subsequently took over the building of the Aliwal North—Zastron line. In 1917 Mr. Watermeyer was appointed Assistant Superintendent (Maintenance) at Pietermaritzburg, and, in 1920, Assistant to the Chief Civil Engineer of the South African Railways. Five years later he became Assistant General Manager at Bloemfontein, and in 1927 went to Cape Town in a similar capacity. In 1929 he was made Assistant General Manager (Technical) at Headquarters, and in 1933 was appointed General Manager. He reached the retiring age in 1939, but was specially retained in the service until February, 1941, when he retired. Mr. Watermeyer was a Knight of Grace of the Order of St. John.

We regret to record the death on March 8, at the age of 72, of Mr. Arthur Reginald Cooper, M.I.C.E., M.I.E.E., M.Inst.T., who was Chief Engineer of the London Passenger Transport Board from 1933 to 1937. He was born at Oxford in 1877, and was educated at Magdalen College School. After a locomotive training at Swindon, he studied at University College, London. In 1899 he was appointed an Assistant Engineer of the London Electric Supply Corporation at the Deptford generating station. Two years later he joined the engineering staff of the Central London Railway, and in 1906 was appointed Superintendent of the Baker Street & Waterloo Railway. In 1908 his duties were extended to include that of Engineer of the District Railway, and later were further extended. In 1921 he was appointed Chief Engineer for the several Underground railways, including the Metropolitan District, London Electric, City & South London, and Central London lines; and on the formation of





**The late Mr. T. H. Watermeyer**

General Manager, South African  
Railways, 1933-41



**The late Mr. A. R. Cooper**

Chief Engineer, London Passenger Transport  
Board, 1933-37  
[Elliott] [ & Fry]



**Mr. H. B. Everard**

Appointed Chief Officer, Engineering  
(Maintenance), Railway Executive

the L.P.T.B. in 1933 he continued in the position of Chief Engineer, retiring in 1937. Mr. Cooper was closely concerned with the Board's extensive new works programme, and was largely responsible for the quietening, cooling and improved ventilation of the Underground system. After his retirement from the L.P.T.B., he served for a period, from 1939, as Director of Air Ministry Factories in the Department of the Director-General of Production. He was President of the Permanent Way Institution in its jubilee year, 1934.

Mr. H. B. Everard, D.S.O. B.A.(Cantab), A.M.I.C.E., who, as recorded in our February 11 issue, has been appointed Chief Officer, Engineering (Maintenance), to the Railway Executive, was born in 1897 and educated at Marlborough and Cambridge; his entrance to the university was deferred on account of the outbreak of war in 1914. Joining the Rifle Brigade

as 2nd Lieutenant in 1915, he saw service in France, was promoted Captain in 1916, and was wounded on the Somme. During 1918 he was engaged at the Foreign Office under the late Lord Balfour and Lord Curzon of Kedleston and was sent to Egypt and Palestine in 1919; he was demobilised on his return to England at the end of that year. He then entered Trinity College, Cambridge, taking an engineering degree. In 1922, Mr. Everard joined the Midland Railway as a cadet under Mr. James Briggs, Engineer-in-Chief, and was posted to the New Works Department. In 1924 he was given the position of Resident Engineer on several new colliery branches and subsequently supervised the construction of the mid-Notts Joint Lines. In 1931 he was appointed Chief Assistant to the District Engineer, Derby (South). Mr. Everard was appointed District Engineer Derby (South) in 1934, and Senior Assistant (Permanent Way), Chief Civil Engineer's De-

partment, at the end of 1944. On account of the situation about the middle of 1939, he was released by the railway company to rejoin the Colours, with the rank of Lt.-Colonel, when he proceeded to form the 2/5th Battalion, The Sherwood Foresters. Shortly after the outbreak of war he proceeded with his battalion to France, and was taken prisoner in 1940. He was awarded the D.S.O. and mentioned in despatches for gallantry in the field. He resumed his railway duties at the beginning of September, 1945, and shortly afterwards was appointed Assistant Engineer (Permanent Way), Chief Civil Engineer's Department, and, in 1947, Engineer (Permanent Way).

Mr. Frank Sutton, Divisional Controller (Freight Services), Office of Divisional Operating Superintendent, Crewe, London Midland Region, British Railways, who, as recorded in our January 21 issue, has been appointed District Operating Super-



**Mr. Frank Sutton**

Appointed District Operating Superintendent,  
Crewe, London Midland Region



**Mr. R. A. Sims**

Claims & Salvage Agent, Commercial  
Superintendent's Office, Western  
Region, who has retired



**Mr. H. W. Howard**

Appointed Claims & Salvage Agent, Commercial  
Superintendent's Office, Western Region

intendent, Crewe, joined the North Staffordshire Railway in the Goods Department at Crewe in 1908. From 1914 he served with the Royal Field Artillery Brigade in France and Egypt, and was mentioned in despatches. He returned in 1919, and was transferred to the Operating Department, where he was attached to the staff of the Outdoor Traffic Superintendent at Stoke; he was engaged on freight train statistics until the District Control Office was opened at Stoke-on-Trent in 1921, and he remained there until 1933. He was then appointed Assistant District Controller at Workington, and in 1935 went to a similar position at Birmingham. Mr. Sutton became Assistant Divisional Controller at Crewe in 1937, and, except for one year when he became District Controller at Rugby, remained in that post until 1947, when he was appointed Divisional Controller (Freight Services), Crewe.

Mr. R. A. Sims, Claims & Salvage Agent, Commercial Superintendent's Office, Western Region, British Railways, who has retired, joined the G.W.R. at Bristol in 1902, and after 14 years in that district was transferred to Weymouth as Chief Clerk. In 1921 he returned to Bristol, serving in the District Goods Manager's Office until 1930, when he was appointed Goods Agent, Weymouth. Four years later he went to a similar position at Oxford, and in 1936 was appointed Chief Clerk to the London District Goods Manager. In 1937, Mr. Sims was made Assistant Goods Agent, Paddington, and, a year later, Assistant District Goods Manager, Bristol. Early in 1940 he was transferred to headquarters as Claims & Salvage Agent.

Mr. H. W. Howard, M.Inst.T., who has been appointed Claims & Salvage Agent, Commercial Superintendent's Office, Western Region, British Railways, joined the G.W.R. at Paddington Goods Station in 1905. In 1922 he entered the Staff Section, Chief Goods Manager's Office, and in 1926 became Chief Staff Clerk to the Bristol District Goods Manager, returning in 1931 to the Development Section, Chief Goods Manager's Office. After serving at South Lambeth as Chief Clerk during 1939, he was appointed Chief Representative to the London District Goods Manager, and in 1941 was placed on special duties in the Chief Goods Manager's Office. He was appointed Assistant District Goods Manager, Bristol, in May, 1944; Goods Agent, South Lambeth, in January, 1946; and Goods Superintendent, Paddington, in October, 1946.

Mr. A. G. Hall has been appointed Commissioner of Railways, Western Australia.

Mr. O. R. Smart, Assistant Mineral Manager, Eastern Region, British Railways, has been appointed Assistant Commercial Superintendent (General Passenger), in succession to Mr. B. M. Strouts, transferred to the Railway Executive.

#### DOCKS & INLAND WATERWAYS EXECUTIVE

The Docks & Inland Waterways Executive has appointed Mr. L. A. Goss to be Information Officer, Headquarters.

The appointments are also announced of Mr. T. S. Roberts as Docks Manager, Hartlepool & Middlesbrough Docks, and Mr. E. Halder as Dock Superintendent, Middlesbrough, on the transfer of Hartlepool and Middlesbrough Docks to the Executive.

## Hotels and Transport\*

*Mr. F. G. Hole, Member, Hotels Executive, on the historical background of British hotels and their relation to transport*

English inns came into being when roads were built, and the earliest examples were used mainly by pilgrims, as ordinary travel was very limited. The accommodation they offered was extremely austere, even when measured by the austerity to which we are having to accustom ourselves in this year of grace. The floors were of earth, or stone, and the bedrooms were shared by both sexes. It took a long time before better accommodation was provided, and as late as the fourteenth century no food was served.

Subsequently, travel increased and this stimulated an improvement in the quality of the inns, which came to be furnished and to serve food of which a description is almost indigestible at the present time. In the seventeenth century the coach came into being and the many new inns which sprang up formed the first direct links between hotels and transport, due to the fact that they were the post houses where new horses were supplied to send travellers on their way after they had been provided with rest and refreshment. This marked the beginning of an era of prosperity for the inns, which reached its zenith in the early years of the nineteenth century.

With the growth of travel, the increase in business and the quickening tempo of events, innkeepers found themselves compelled to keep abreast of changing fashions and tastes, and new customs grew up. Thus, instead of the wealthier travellers dining in private rooms while the poorer ones ate in the kitchen, a common table was provided for the coach-breakfasts and coach-dinners. The privileged people, who had their own postchaise, or who resided in the inn, still dined in private, but the ordinary traveller sat at table in the big dining room, or coffee room.

#### INFLUENCE OF RAILWAYS

The boom in business which like all booms before, or since, had led to enormous expansion, was attended by the construction of new and better inns along the main coaching routes. It was checked and swept away by an unforeseen development, namely, the coming of the railway. The great mistake that the railway made was that it did not go anywhere near the inns. In consequence, these suffered a virtual eclipse, and in their place came the first so-called "railway hotel." This does not mean the first hotel built by the railways, which was constructed at Euston in 1838, but a rather sorry piece of work that unfortunately seems to have been identified with the railways—an association of ideas which has obstinately persisted in the public mind, in spite of the vast contribution made by the railways to our modern hotel system. The first "railway hotel" was mercifully soon to be supplanted by the comparatively modern hotel, or inn, in the big towns.

The wheel has tended to travel full circle, as in recent years, with the growth of motor transport, there has been a drift away from the hotels in the towns to that modern equivalent of the inn, the country hotel on the country road, if not to a modernised version of the old inn itself.

Hotels are not places where a fortunate few go to enjoy themselves, although one of the functions of the hotels is to offer recreation and rehabilitation to people in their times of leisure; they are primarily a necessity for the accommodation and refreshment of the industrialist, the business man, the commercial traveller and the tourist from home and abroad.

#### VALUE OF UNOBTUSIVE SERVICE

Hotels are essentially private houses for the time being and nothing can be allowed to intrude on the privacy of the guest. The latter usually hates fuss, and to give unobtrusive service is the duty of the good hotel-keeper; yet hotels have it in their power to make or mar some of the most important events in our lives. We may have the best goods to sell, or the finest scenery to see, but unless the task of purchasing the goods or viewing the scenery can be made an agreeable one, the stranger, after his first visit, may be strongly tempted to go elsewhere. Gleneagles Hotel, with every justification, we may regard as one of the paramount hotels in the world; in its wonderful setting it is a powerful magnet for visitors from all parts, but if it were not so comfortably appointed and if it did not offer that feeling of restful welcome, which is engendered by the personality and high qualifications of management and staff, not even the charm of the Scottish Highlands, of which it is the gateway, would suffice to persuade them to pay return visits. The same is true of the more modest hotel for the less affluent traveller, as it cannot afford to be less than comfortable and a worthy complement to the environment in which it has its being.

The task of the hotel-keeper in striving to discharge his responsibilities in this respect has never been an easy one in this country because of the somewhat contemptuous lack of esteem which the profession has held in the minds of the people. This partly may be due to the fact that the legislature in the past tended to class hotels with common drinking houses and this has been a serious handicap not only in making it difficult to attract the right type of people into the profession, but in causing hotels in this country to lag behind their competitors on the Continent of Europe, where the true status of the hotel industry is well recognised. This is a pity because in its hotels a country may have its finest advertisement. The best transport system in the world is not sufficient to attract travellers unless it is supplemented by hotels in which the travellers will be at ease.

It will be a bad day for this country if the growth of standardisation, uniformity and regulation overspreads, let alone overwhelms, the personal character of our hotels and inns. The huge, impersonal, mechanised, functional hotels of the United States of America, where personal service is conspicuous by its absence, are admirable in their way, but an advertisement which has been quoted as one of the best selling-points for British tourism in the United States, was to the effect that "they still turn your bed down in England." We are a homely race, let us not try too much to emulate ideas that are not in keeping with our nature. The commercial hotel still reflects in many ways the spirit of England and constitutes a selling-point to our tourist trade.

\* Abstract of a paper: "Hotels and their Relationship to Transport," read before the Railway Students' Association, London School of Economics & Political Science, by Mr. F. G. Hole, Member, Hotels Executive, on March 9.

## Ministry of Transport Accident Report

*Ardler Junction, Scottish Region, British Railways: July 17, 1948*

Brigadier C. A. Langley, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred at 5.8 p.m. on July 17, 1948, at Ardler Junction, Scottish Region, British Railways, when the 3.30 p.m. up passenger-postal express, Aberdeen to Glasgow, composed of 4 Post Office vans and 7 corridor coaches drawn by a Class "5X" 4-6-0 engine, came into converging collision with the 4.20 p.m. passenger train from Dundee West to Blairgowrie, composed of two coaches hauled by a Class "2P" tank engine, which had overrun the branch line home signal.

The express engine hit the tank engine just as it reached the trailing junction, apparently turned it on its side, and carried it forward. After travelling 100 yd. the

comes into view immediately after traversing a curve from Newtyle and the two home signals are visible from that point, although the branch home is masked by the fixed distant. The background to the main home is also better, and, therefore, it is more easily seen until the branch distant has been reached, when both home signals stand out well and there is no difficulty in distinguishing them. The block is the Tyr's 2-position Caledonian type, on the main line, and No. 7 type electric tablet on the branch. There are no outer home; and converging trains may not be accepted simultaneously. Maximum permissible speed is 75 m.p.h. on the main line and 40 m.p.h. on the branch, subject to 10 m.p.h. restriction on exchanging tablets by hand. There is a platform at the foot of

He could do nothing to attract the driver's attention. The window that side was closed and he had no time to collect flags and detonators, although they were handy. Remembering the down train then due, he put back his down signal levers. The distant signal went to caution, but the home was held off by debris on the wires.

Normally he held branch trains at Newtyle and did not accept them until they could be accepted by Ardler Station. Once or twice he had brought one to the home signal and waited for it to stop before accepting on the main line.

The driver of the express found all signals off for him, and coming round the right-hand curve, saw the branch train between the signal-box and the main line. He was knocked unconscious without having had time to do anything.

The porter guard of the branch train was travelling at the rear and said the train gathered speed after leaving Newtyle and attained about 30 m.p.h. Thereafter,

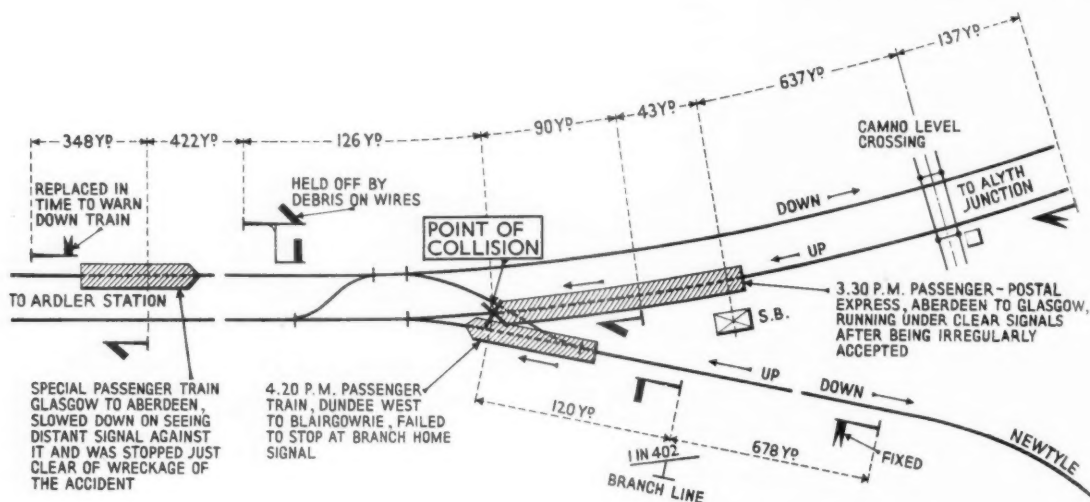


Diagram illustrating circumstances of accident at Ardler Junction, Scottish Region, on July 17, 1948

express engine turned round to the right and came to rest, badly damaged, on the down side bank facing towards Aberdeen. The leading Post Office van was thrown off the line into a field beside the tank engine and the next four vehicles were wrecked and collapsed into a heap. The tank engine was badly damaged and also the coaches of its train, which were swept clear of the main line by the express. The main lines were reopened 30 hr. later, but the branch-line connections were not completed until July 23.

A crowded down special passenger train, Glasgow to Aberdeen, fortunately found the Ardler Junction distant signal against it, as the signalman had replaced it to caution in time, and was stopped clear of the obstruction. The driver of the branch line train and the fireman of the up express were fatally injured. Six passengers and one railway servant were detained in hospital. Assistance was speedily summoned and the crew of the down train and a lady doctor travelling therein gave immediate first aid. It was a fine day and the rails were dry.

The accompanying diagram shows the lines, signals, etc., essential to an understanding of the case.

The view of the signals is satisfactory. The branch distant is fixed at caution and

the signal-box steps, where the signalman receives or delivers the tablet.

### COURSE OF EVENTS

The traffic was heavier than usual, but not excessive. The signalman was offered the train from Newtyle at 4.57 p.m., but did not accept it. Immediately after that, he accepted an express from Alyth Junction and this duly passed, "train out of section" being received from Ardler Station at 5.3 p.m. The signalman then enquired about the running of the passenger-postal train and understood it to have just passed Kirriemuir, 10½ m. distant. He concluded he had time to bring the branch train to the home signal and accepted it at 5.4 p.m. The express was nearer than he expected and no sooner had he accepted the branch-line train, than the express was offered to him. He accepted it after a short pause, offered it forward and pulled off all signals for it. About 2 min. later the branch train was seen approaching and "entering section" was received for the main-line train. The signalman looked out for that and first saw it when the branch train was about 100 yd. away, still travelling fairly fast. He made no attempt to stop either train. He thought the branch train would stop, but when it was a few yards off, realised it would not.

the driver applied the brake periodically and the vacuum varied between 10 and 21 in. He admitted that he was not looking out for signals on approaching the junction. He was busy looking for a label, which he thought had fallen off an unmarked perambulator. After passing the signal-box at about 10 m.p.h. he realised there would be a collision and went to apply the brake, but the driver then made an emergency application. During his two years as a guard on this route, his train had never been stopped at the junction. The driver made no attempt to pull up and he thought they were to run through as usual. Usually he looked for the junction signals and would have applied the brake had he seen that the train was going to overrun the home signal.

The fireman of the branch train was not fit to give evidence to Brigadier Langley until October 29, 1948, when he was interviewed in hospital. He had only a hazy recollection of events immediately before the collision. His driver appeared to be in good health and nothing unusual occurred until they reached the junction. He was not very conversant with the signals. He had travelled over the route only on two or three occasions and did not notice their aspects. Approaching the box at about 10 m.p.h. he was standing look-



ing out, so as to deliver the tablet. When they reached it, the signalman had not appeared. He expected the train to stop, but it did not, and then he saw the express coming. They were 20 to 30 yd. past the box and he shouted; the driver was by then applying the brake.

The driver of the down express passed Ardler Station at 60 m.p.h., noticed the junction distant at caution and applied the brakes. He saw the home signal at clear, but, as the line was obscured by steam, he stopped a few feet clear of the obstruction. The fireman confirmed this. He went to see to the protection of the train and found the fireman of the branch train, who had lost a foot; although he had not been trained in first aid, he successfully applied a tourniquet.

A lengthman at Camno level crossing confirmed that the branch-line home signal was at danger and that for the main line off for the express.

#### INSPECTING OFFICER'S CONCLUSION

The driver of the branch train must be held immediately responsible for the collision, as he passed the home signal at danger. The signalman was seriously to blame for allowing the two trains to approach simultaneously, in contravention of the Block Regulations. The driver did not work regularly on the line and had travelled over it only twice during the previous four months. It therefore is possible that after passing round the curve from Newtyle, he saw the main home signal off and mistook it for the branch home, at first obscured by the fixed distant. On reaching the distant, however, both homes stand out clearly and no driver

should have any difficulty in distinguishing them. It can only be concluded that the driver, having seen a home signal at clear assumed it to be for his train and thereafter did not keep a proper lookout. He had 36 years' service, 4 as driver, and had an excellent record. The fireman—a passed cleaner—cannot be criticised, as he had to deliver up the tablet and was looking out on the right for this purpose. He thus would be unlikely to see a signal on the left.

The guard, however, should have watched the running of his train as it approached the junction. Had he been observant, he should have seen that it was running past the home signal, and taken emergency action. His excuse about the label, Brigadier Langley cannot accept, and he considers that the guard, a man of 9 years' service, with a clear record, failed to keep a proper lookout in accordance with Rule 148(a).

The signalman had 10 years' service (5 spent in the Army) and had been a signalman for 2 years, with an excellent record. He should not have accepted the express until the branch train had stopped at the home signal. He unwisely had accepted the branch train and then had either to delay the other one, already late, or violate regulations. The signalman seems to have lost his head and failed to realise the risk involved in accepting the main-line train.

When he saw it approaching, he should have gone outside with detonators and flags ready to stop the branch train if it appeared to be travelling too fast. He took no preventive action and did not recover his senses until after the collision.

when he took steps to stop the down train. The driver of the express had no chance of averting the collision.

#### REMARKS

It is fortunate that the first six coaches of the express were empty and both trains lightly loaded. Another serious collision also was narrowly averted by the prompt action of the driver of the down train. The signalman had little time left in which to act. Detonator-placers, however, would have been quick to use and probably he would have operated them when he saw the two trains approaching. He should have had time to put a detonator on the branch line before the engine passed him, and this should have been sufficient to cause the driver to make an emergency brake application and stop clear.

Brigadier Langley has no criticism concerning siting of the signals, even though the driver may have taken the main-line home for the branch home. View of both at 700 yd. is excellent and a driver keeping a proper lookout should not have been misled. He recommends, however, that consideration be given to making the branch distant a worked signal. Normal routine is to run trains through from that line under clear signals and to hold them at the home only on rare occasions. A fixed arm may come to be disregarded as a warning of signal aspects ahead and be regarded as a location mark only. If the branch distant normally had been lowered when the signals ahead were off, the driver, finding it at caution, would have realised that his initial impression concerning the home signals was mistaken, and had his attention drawn to the branch home.

### British-Built Locomotives for Portuguese West Africa

(Concluded from page 294)

ards, Henricot, Atlas No. 2 couplers are fitted with long drawbars.

Further attention has been given in the design of the tanks to provide the maximum accessibility to pipes and joints between the frames. As will be seen in the illustrations, the tunnel gives ample room for entry and attention to details between the frame. The back of the front tank is arranged with removable end plates to facilitate the withdrawal of boiler tubes.

#### Bogies and Brake Gear

The outer bogie is of the sliding centre type with laminated spring side control; allowance is made for a total side play of 4 in. The axleboxes are of the latest cannon type with Timken roller bearings. The inner bogie is of the radial-arm type and the Timken roller-bearing axleboxes are accommodated in a one-piece cast-steel housing.

The steam brake operates on all coupled wheels and a hand brake is provided to the hind unit only; the brake gear is fully compensated. The vacuum brake is controlled by a Gresham & Craven type G solid jet combination ejector fitted with  $\frac{1}{2}$  in. graduable combined steam brake valve Mark IV.

#### Cab and Mountings

A particularly clean and convenient cab has been possible on these locomotives by taking full advantage of the loading gauge, both in height and width. Circular seats are spring loaded for maximum comfort, and a simple arrangement of controls has been possible despite the necessary equip-

ment for the oil burning. The double roof carries insulation of sheet asbestos between the outer steel plate and the wood lining. The semi-tropical conditions under which these locomotives will operate has necessitated these arrangements and also the provision of ventilation in the roof with maximum opening at the cab sides and in the cab front. These locomotives are provided with the Hadfield power re-

Cylinders (4) dia. x stroke	16 in. x 24 in. (406 mm. x 610 mm.)
Coupled wheels	4 ft. (1,220 mm.)
Boiler pressure	200 lb. per sq. in. (14.06 kg./cm <sup>2</sup> )
Heating surface:—	
Tubes	1,779 sq. ft. (165.27 m <sup>2</sup> )
Firebox (with syphons)	215 sq. ft. (19.97 m <sup>2</sup> )
Total evaporative	1,994 sq. ft. (185.24 m <sup>2</sup> )
Superheater	370 sq. ft. (34.36 m <sup>2</sup> )
Grate area	2,364 sq. ft. (219.6 m <sup>2</sup> )
Tractive effort at 85 per cent. B.P.	48,750 lb. (22,110 kg.)
" at 75 per cent. B.P.	43,520 lb. (19,740 kg.)
Oil capacity	38,400 lb. (17,418 kg.)
Water capacity	1,500 gal. (6.8 m <sup>3</sup> )
Total weight (in working order)	5,500 gal. (25 m <sup>3</sup> )
	149 tons (151.4 tonnes)

verse gear. A positive locking in selected cut-offs is possible, and, in addition, should any creep occur in the gear, it is automatically returned to the selected position. A Sellars type drifting valve is located on the side of the firebox and operated from the cab. The Klinger reflex type water gauges are clearly marked to ensure safe working on the 3 per cent. grades.

Apart from the coupled wheel axleboxes and hub faces, oil lubrication is used throughout and one 8-feed Silvertown mechanical lubricator is fitted to each unit. Two feeds are carried to the steam ball joints, two to the pivot centres, one each to the cylinder barrels and one to each steam chest. Stones electric lighting equipment includes provision of headlights front and rear, and the usual fittings for the illumination of the cab, the mount-

ings on the firebox back and the steam reversing indicator. A very clear lookout and convenient arrangement of controls is provided for the driver, who has a Stones Deuta electrical speed indicator in clear view. All controls are marked in the Portuguese language.

The leading dimensions of the new locomotives (with metric equivalents in parentheses) are as follow:—

These locomotives are now being shipped to the Port of Luanda. They will be the first articulated locomotives on the railway, and also the first engines there to be fitted for oil burning. They provide a very good example of a straightforward powerful locomotive of low axle-load for the metre gauge, designed for easy operation and simple maintenance. They will be used on the main line from Luanda to Malanje, a distance of 264 miles.

CANADIAN PACIFIC RAILWAY COMPANY.—The sixty-eighth annual meeting, for the election of directors to take the places of retiring directors and for the transaction of business generally, will be held on May 4 at Montreal, at noon. The stock transfer books of the company will be closed at 3 p.m. on April 12.

## London's First 8-ft. Wide Bus

The first 8-ft. wide double-deck oil-engined bus for London Transport is now undergoing road tests, and will be placed in public service shortly on route 41 between Highgate, Tottenham Hale, and Ilford Station. It is known as RTW 1 and is the first of 500 ordered by the London Transport Executive for use on a limited number of outer suburban routes over which approval to operate these wider buses has been obtained. Both chassis and body are being built by Leyland Motors Limited.

The body, which is mounted on a 125-h.p. diesel chassis, incorporates the main Leyland metal-frame structural features, but has been adapted to London Transport design and styling to bring it into line with the post-war fleet. It has the four wide window bays which are a feature of the RT and RTL type buses and has a similar interior layout. The centre bulkhead at the front of the lower saloon has been widened by 6 in., enabling standard RT type windows to be used. The destination indicators, also, are standard.

The longitudinal dimensions of the body are the same as those of the RT and RTL types, but the width of the RTW, at 8 ft., compares with the standard 7 ft. 6 in. of the other types. The additional 6 in. are used in providing 4 in. extra on the gangways of both decks and 1 in. on the clearance of every pair of seats. Standard seats are used, but all crosswise seats are moved 1 in. from the body side, to give improved shoulder room. The extra 6 in. in width also has enabled the offside rear partition to be extended, to provide a recess for the conductor, and an additional grabrail is fitted to assist passengers. The width between the staircase handrails has been increased by 2 in., and the width of the corner staircase treads increased, making ascent to the top deck easier. The driving seat, steering wheel, pedals, and all controls have been moved 2½ in. to the offside.

**COVENTRY GAUGE & TOOL COMPANY.**—The net profit of the Coventry Gauge & Tool Co. Ltd. for the year ended August 31, 1948, declined from £67,462 to £32,234. An ordinary dividend is recommended of 7½ per cent., plus a bonus of 7½ per cent., both free of tax, the same as last year, leaving £234,132, against £234,788, to be carried forward.



Lower saloon of 8-ft. wide bus, showing gangway widened by 4 in.



Tilting test at overturning angle of 28° (chassis) and 35° (body)

## Fluorescent Lighting in Transport Vehicles

The technique and possibilities of fluorescent lighting in the conditions peculiar to rail and road transport vehicles were recently reviewed in a paper read to a meeting of the Illuminating Engineering Society at Nottingham by Mr. C. Dykes Brown, A.M.I.E.E., and Mr. S. Anderson, B.Sc., both of the General Electric Co. Ltd. The problem is to increase the degree of illumination where it is needed, that is, from the present average of 4 or 5 lumens per sq. ft. on the reading plane, without putting unshaded light close to the passenger's line of vision, and without harsh shadows.

Hot-cathode lamps, 1½ ft. 15W., or 2 ft. 20W., are used in fluorescent lighting of most vehicles in this country. Short lamps allow of a compact and flexible layout, and can be operated on a supply of about 100 volts; lower voltages can be used with shorter lamps in special circum-

stances, but their efficiency is usually less. In most steam-train rolling stock and in buses a 24-volt supply is available, which is best converted to a.c. at 110V. and about 400 cycles, since the gear used can be made small, and simple resonant starting circuits, without starter switches, can be used. It is claimed that for a given drain on the battery, fluorescent gives double the illumination of filament lamps, although as the result of using a rotary convertor, only sixty per cent. of the power from the battery appears in the lamps. With a 24-V. battery giving 1,000 W. (effectively 600 W.), as is usual in railway coaches, a 400-cycle is ideal. Much steam stock uses a 60-cycle supply at 120V. or 230V., with which 2 ft. and 4 ft. or 5 ft. lamps respectively can be used.

Cold-cathode lamps are eminently suitable for train lighting. The deficiency of deep red rays can be compensated for by

using a neon filling in combination with one of the white colours, giving an attractive light suitable, for instance, for restaurant cars. Although high voltages are needed, the longest tube likely to be used would not exceed 8 ft., for which a nominal 600 to 900 V. is sufficient, with small and compact transformer if a 400-cycle is adopted. A new 4 ft. tube is becoming available, suited to the dimensions of transport vehicles. The life of cold-cathode tubes run at 60 mA. is between 10,000 and 15,000 hr., and their replacement and the examination of gear can coincide with overhaul of stock.

In some railway vehicles provided with a 110V. d.c. supply for air-conditioning and other purposes, 1½ ft. and 2 ft. hot-cathode lamps can be operated direct from batteries, given certain precautions. An interesting example of fluorescent lighting at 110V. d.c. is the South African Railways' new royal train, for which G.E.C. supplied all lamps and gear.

## Institution of Engineering Inspection

### Paper on organisation of railway services

At a recent meeting in London of the Institution of Engineering Inspection, with the President, Lt.-Commander R. B. Fairthorne, in the chair, a paper entitled "Railway Services: their Organisation and Control" was read by Mr. J. G. Boustead, A.M.Inst.T., of the School of Transport, London Midland Region, Derby.

The address was illustrated by lantern slides and dealt, at first, with the fundamental characteristics of rail transport, its rapid growth in Great Britain, the necessity for a signalling system, and the leading principles on which the existing arrangements had been built up. After the broad introduction, Mr. Boustead showed how the needs for certain train facilities were assessed, and how the timetables were drafted and the rosters covering the trainmen's duties worked out. A typical section of main line was taken, and the paths of the various trains explained. This was followed by an explanation of the work of the control offices and the savings in train and trainmen's hours effected by a correct regulation of the details of running.

A number of questions was asked, to which the lecturer replied fully. Considerable interest was shown in the fog problem and automatic train control, while the question of combining stations and facilities in certain towns and the congestion experienced on some routes brought many comments.

## Application of Power in Railway Signalling

In the course of a paper entitled: "Development of the All-Electric Control Machine in Modern Railway Signalling," which he read before the Birmingham Electric Club on February 21, Mr. O. S. Nock, pointed out that the application of power in railway signalling first comprised the elimination of manual operation of moving points and semaphore signals. The contrast in size of apparatus and the physical effort involved was emphasised by illustrations of mechanical locking frames, and power frames of early design.

The introduction of track circuiting then was described, as a means of holding the road, of proving that certain sections of the line were unoccupied, and sometimes of enforcing speed restrictions through the delayed clearance of critical signals. Track circuit locking had been applied to the earlier forms of power frames to provide track locking, approach locking, and back locking of the miniature levers.

Application of electric locking to the levers of a power frame, through the agency of electric-magnetic locks on slides attached to the levers, had been followed some years later by the use of all-electric interlocking between the levers themselves. The distinction between track, indication, and approach locking on the one hand, and the lever interlocking on the other had to be clearly drawn; lever interlocking safeguarded the setting of the road, whereas electric locking based on the track circuits, provided the additional safeguards against moving points under a train, reversal of points in face of a train, and so on.

In later forms of the all-electric control machine, the lever, as such, had been

dispensed with, and small non-interlocked thumb switches were used instead. The necessary interlocking was provided through the agency of relays, which proved that the various track conditions were correct before a signal could be cleared, or a route set up. The number of lever movements had been reduced further still by the use of route switching.

Various forms of modern control panel were described, including the Westinghouse one-switch route system, as used at Hull, Northallerton, and in course of installation at York; the G.R.S. Entrance-Exit system, in course of installation at Stratford; and the sequence switch interlocking, as installed at Doncaster.

## Questions in Parliament

### Travel Costs for Members of Parliament

Lt.-Commander Gurney Braithwaite (Holderness—C.) on March 10 asked the Chancellor of the Exchequer what had been (1) the cost to the taxpayer of railway tickets for Members of Parliament during 1948; (2) the cost to the taxpayer for sleeping car tickets for Members during 1948; and (3) the cost to the taxpayer of air travel for Members during 1948.

Sir Stafford Cripps (Chancellor of the Exchequer), in a written answer, stated: From January 1 to December 31, 1948, £65,590 was paid for the railway journeys of Members between London, home, and constituency, of which £9,301 was in respect of sleepers. Payments for air fares amounted to £3,293.

### Level Crossings

Mr. David Renton (Huntingdon—Lib. Nat.) on February 21 asked the Minister of Transport whether he was aware that circumstances had in many cases changed since the 22,600 occupational level crossings in Great Britain had been first constructed; and what steps he proposed to take to bring up to date the law relating to the risks undertaken by the public in using these crossings, which were now more frequented than formerly.

Mr. Alfred Barnes (Minister of Transport): I have asked the British Transport Commission to examine and report on the whole question of occupation crossings, and I cannot say what action may be required until I have received and considered its report.

Mr. Renton: Is the Minister aware that it was nearly a year ago when this question was first brought to his notice; that a number of serious accidents have taken place at such crossings since then; and will he do all he can to expedite the matter?

Mr. Barnes: Yes, but Mr. Renton knows, as his own question indicates, that this is a very considerable problem.

### Transport of Groundnuts

Sir Ralph Glyn (Abingdon—C.) on March 2 asked the Secretary of State for the Colonies whether he was aware that the transport of groundnuts on the Nigerian Railway had fallen short of the estimated carriage by over 33 per cent.; whether the supply of wagons was insufficient to carry the uninfested groundnuts; and why infested stocks were being handled in preference to lightly-infested or unaffected stocks.

Mr. A. Creech Jones (Secretary of State for the Colonies): No, Sir. In the six months ended January 31 last railings exceeded estimates by 5 per cent. Shortage of wagons is still a limiting factor on

railings, but more wagons are steadily being shipped to Nigeria. Infested stocks, whether heavily or lightly infested, are being fumigated and hurried out of the country to prevent the trouble from spreading, but this total amount represents less than the amount which can be moved in a fortnight, and uninfested stocks are being handled as well.

### Railway Surveys in East Africa

Colonel A. D. Dodds-Parker (Banbury—C.) on February 23 asked the Secretary of State for the Colonies what progress had been made in the survey of the railway line to link the Tanganyika central line with the Kenya & Uganda Railways.

Mr. A. Creech Jones (Secretary of State for the Colonies), in a written answer, stated: Negotiations are still proceeding to secure the assistance of the Economic Co-operation Administration in carrying out these surveys.

### Nigerian Railway Works

Wing-Commander Geoffrey Cooper (Middlesbrough West—Lab.) on February 9 asked the Secretary of State for the Colonies what plans had been prepared for making the Lagos—Kano sector of the Nigerian Railway a double track to augment the present single track now found inadequate for the amount of groundnuts accumulating in Kano.

Mr. Creech Jones: No plans have so far been made to this end. Apart from a short section just north of Lagos which may need special attention, the existing track will, so far as can be foreseen, carry all the traffic required for the evacuation of groundnuts.

Wing-Commander Cooper: Is not one of the chief causes of the hold-up in groundnuts production in West Africa the narrow track between Lagos and Kano? Could not the Colonial Secretary give immediate priority consideration to this problem?

Mr. Creech Jones: The essential difficulty is the limitation in regard to wagons and locomotives. It is not the size of the track.

Mr. Wilson Harris (Cambridge University—Ind.): Does the answer of the Minister mean that there is at present a serious accumulation of groundnuts awaiting movement?

Mr. Creech Jones: This season's groundnuts are awaiting movement.

Mr. Oliver Stanley (Bristol West—C.): Does the Minister mean that the whole of last year's crop has been moved?

Mr. Creech Jones: I should require notice of that question. (Cries of "Oh"). I can say that part of that crop has been removed.

### DEVON GENERAL OMNIBUS COMPANY.—

The report of the directors of the Devon General Omnibus & Touring Co. Ltd. for the year ended December 31, 1948, shows a net profit of £177,753, and the balance brought forward from the previous year was £94,243. After transferring £100,000 to general reserve, there remains an available balance of £171,996, which will be applied to dividends and bonuses for the year, less income tax, at the rate of 7 per cent. on the cumulative preference stock, 20 per cent. on the ordinary stock on account of which 10 per cent. has already been paid, and a bonus of 15 per cent. on the ordinary stock, leaving £127,721 to be carried forward.



## Notes and News

**Design Engineer Required.**—The Port of London Authority invites applications for the appointment as design engineer in its engineering department. See Official Notices on page 307.

**Assistant Engineers Required.**—The Port of London Authority invites applications for appointments as assistant engineers in the engineering department. See Official Notices on page 307.

**London Transport Players.**—The London Transport Musical & Dramatic Society is presenting "Tulip Time" at the Scala Theatre, Tottenham Court Road, from March 30 to April 2, at 7 p.m.

**Institution of Civil Engineers.**—A film entitled "Production Distribution, and Use of Ballast on British Railways" will be shown at a meeting of the Institution of Civil Engineers, Great George Street, Westminster, London, S.W.1, on March 29, at 5.30 p.m.

**Institute of Transport, Metropolitan Graduate & Student Society.**—Mr. H. G. M. Viney will read a paper on "Power Signal Operation" before the Institute of Transport, Metropolitan Graduate & Student Society on March 29. The meeting will be held at 80, Portland Place, London, W.1, at 6 p.m.

**Transport Statistics.**—The first of the 1949 series of *Transport Statistics* has been published by the British Transport Commission, 55, Broadway, Westminster, London, S.W.1. The booklet covers the four-week period to January 30 and it is hoped to deal with the statistics in our usual tabular form, in a forthcoming issue.

**Institute of Transport Silver Jubilee Scholar.**—Mr. J. A. Williams, Commercial Department, Euston, London Midland Region, left for the U.S.A. on March 9 to study the organisation, functions, and working methods of the Association of American Railroads. Mr. Williams is the Institute of Transport Silver Jubilee Scholar for 1949. He was seen off at

Waterloo by Colonel H. Rudgard, Chief Officer (Motive Power), Railway Executive, who is also Chairman of the Scholarship Committee of the Institute of Transport.

**Rhodesia Railways Trust.**—An extraordinary general meeting of the Rhodesia Railways Trust is called for March 31, to consider certain alterations to the Memorandum of Association.

**San Paulo (Brazilian) Railway Co. Ltd.**—The directors of the San Paulo (Brazilian) Railway Co. Ltd. announce that they will be unable to present to the proprietors in general meeting, the accounts for 1947, until a later date than that indicated at the adjourned meeting on November 16, 1948. It is hoped that the adjourned meeting may be held early in June.

**Ulster Transport Authority.**—According to a recently issued traffic return, receipts of the Ulster Transport Authority for the week ended February 27, with the consequent increase or decrease over traffic for the comparative period of 1948, were as follow:—

	1949	Incr. or decr.
Passenger ... ..	£52,084	+£8,772
Goods ... ..	£27,148	+£4,367
Total ... ..	£79,232	+£13,139

The aggregate receipts for 21 weeks to date were:—

	1949	Incr. or decr.
Passenger ... ..	£1,115,158	+£175,698
Goods ... ..	£556,997	+£78,852
Total ... ..	£1,672,155	+£254,550

**British Steelfounders' Visit to U.S.A.**—The first British industrial team to visit the United States under the auspices of the Anglo-American Council on Productivity representing the steel founding industry, sailed on March 9 for a stay of six weeks. The team of 16 technicians, supervisors, and foundry workers will visit and report on steel plants at Chicago, Detroit, and Milwaukee. The British firms represented by the team include David Brown & Co. Ltd., K. & L. Steel Founders & Engineers, Limited, Edgar Allen & Co. Ltd., F. H.

Lloyd & Co. Ltd., and the English Steel Corporation Limited. The sterling expenditure incurred will be met partly by the British Treasury and partly by the firms represented; dollar expenditure in the United States will be met from E.C.A. funds.

**Cheap Tickets for Hikers.**—The Railway Executive, Scottish Region, announces that cheap day walking-tour tickets have been introduced at Glasgow, Edinburgh, Aberdeen, Inverness, Perth, and Dundee. The tickets, which are issued every day and are available by any train, outward or return, enable hikers to travel by rail to a selected station and to return from the station at the end of the cross-country walk.

**Talalt Railway Company.**—Increased tonnage carried at higher rates for the year ended June 30, 1948, resulted in the gross receipts of the Talalt Railway Company, Chile, showing an increase, at £97,792, of 92 per cent. over the previous twelve months. Working expenses, however, rose by 51 per cent., resulting in a loss for the whole year of £16,869, which compares with a loss of £25,186 for the previous period. There was a net loss of £9,503, against £18,150, increasing the debit balance carried forward to £65,847.

**Reduced Rail Fares for Juvenile Parties.**—Restoration of another pre-war travel facility is announced by the Railway Executive. Cheap railway tickets for parties of boy scouts, girl guides, and other parties of young people attending camps, rallies, etc., have been issued in the summer months on Tuesdays, Wednesdays, and Thursdays since 1940, but this year these tickets will be issued any day of the week, the only restriction being on long-distance journeys during the four week-ends July 23-August 13, when the summer holiday traffic is at its peak.

**Model Railway Exhibition.**—The Model Railway Club is holding its annual exhibition in the Central Hall, Westminster, London, from Tuesday, April 19, until Saturday, April 23. Over 30,000 persons attended the exhibition in 1948, and this year it is hoped to display over 3,000 models, which will include a comprehensive display representing each of the former railway groups. A complete working model railway staged by British Railways, as well as many other working track-layouts of different scales, will be on view in the basement, and a stand is to be devoted to all branches of electricity used on a model railway. The hours of opening will be 2-9 p.m. on April 19 and 11 a.m.-9 p.m. from April 20 to 23.

**Christmas Tree Collections at N.E. Region Stations.**—Mr. C. P. Hopkins, Chief Regional Officer, North Eastern Region, British Railways, recently handed to Mr. C. M. Jenkin Jones, Chairman of the York (A) & Tadcaster Group Finance Committee of the Hospitals Board, a cheque for over £900, the result of the York Station Christmas tree effort. During the 1948 Christmas season, travellers and railwaymen and women collected just under £5,200 and 11,548 parcels, toys, and books through the medium of the Christmas tree displays at ten of the principal stations in the Region. This brings the total amount collected since 1939 to £27,109 and over 59,000 parcels. The money, up to the 1947 displays, has been distributed to charities, particularly hospitals, and the books and toys have been sent to hospitals, orphanages, and other charitable institutions. Some of the 1947 money, and all of the 1948.



Mr. J. A. Williams, L.M.R., the Institute of Transport Silver Jubilee Scholar for 1949, left for the U.S.A. on March 9, and was seen off at Waterloo by Colonel H. Rudgard, Chairman of the Institute Scholarship Committee (see paragraph above)

### U.S.A. Scholarship Tour

## OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless, he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

WE require a Secondhand Locomotive Boiler in insurable condition for 150 lb. per sq. in. Maximum sizes 8 ft. 7½ in. long, 2 ft. 7 in. diam. o.d. barrel. Firebox 2 ft. 6 in. by 3 ft. 4 in. wide o.d. Particulars to CHIEF ENGINEER AND GENERAL MANAGER, SOUTHPORT CORPORATION GAS DEPARTMENT, 91, Eastbank Street, Southport.

THE PORT OF LONDON AUTHORITY invite applications for appointment as Design Engineer in the Engineering Department—scale of pay £625 rising by annual increments of £25 to £750 per annum. Commencing salary will be according to qualifications and experience.

Candidates must be British subjects with experience as Structural and Civil Engineering Draughtsmen in the design and detailing of reinforced concrete and/or steelwork as applied to Dock Construction and Port Facilities such as quays, jetties, lock gates, warehouses, transit sheds, office buildings, bridges or railways, and must be able to make general surveys for new work and to take site measurements.

Application forms may be obtained from the Establishment Officer, Port of London Authority, Trinity Square, E.C.3. F. W. NUNNELEY, Secretary.

has been dedicated to the provision of those extra little comforts which mean so much to patients in hospitals but which are not provided for under the State scheme.

**Scinde Punjab & Delhi Railway Company.**—It was notified recently that on December 31, 1948, a total sum of £4,566,031 14s. 9d. was invested for the purpose of providing a sinking fund in respect of the annuities class "B."

**British Railways Shopmen's Wage Increase.**—After protracted negotiations British Railways shopmen are to have wage increases ranging from 6d. to 10s. a week with accumulation of back pay for more than 12 months. These increases, which will be paid from the middle of next month, are based on an agreement signed in February last year, over which, as was reported in our June 11, 1948, issue, there was a dispute over the interpretation of terms.

**Increase in Rail Fares in Ireland.**—On March 14 it was announced in Dublin that the Minister for Industry & Commerce had agreed to a proposal by the Irish Transport Company for an immediate increase of approximately 16½ per cent. on single rail fares and 8½ per cent. on return fares. This will mean that the present third class single fare will be increased from 1½d. to 1½d. a mile. In the case of the G.N.R. (I.) the increase will be about 11 per cent. and fares on the Londonderry & Lough Swilly Railway are to be higher by about 10 per cent. There has also been a request by the Irish Transport Company for an increase of 16½ per cent. on provincial bus fares. Further consideration is to be given to this request.

**Closing of Four Belfast & County Down Sections.**—Details were announced on March 11 of the Northern Ireland Transport Authority proposals for closing sections of the Belfast & County Down Railway. Four sections are involved in this plan, namely, Belfast, Donaghadee, Comber - Newcastle, Downpatrick - Ardglass, Ballynahinch Junction-Ballynahinch. It will be open to any body or association to object to the proposals, but objections must reach the Ministry of Commerce before April 20, and actual transfer of

THE PORT OF LONDON AUTHORITY invite applications for appointment as Assistant Engineers in the Engineering Department—scale of pay £750 by annual increments of £50 to £900 per annum.

Preference will be given to candidates not over 40 years of age who must be British subjects and Corporate Members of either the Institution of Civil Engineers or the Institution of Mechanical Engineers with experience in civil engineering construction and maintenance in a Dock or Harbour Undertaking or in the erection and maintenance of machinery and plant used in Dock and Railway Undertakings.

Successful applicants will be required to become members of the Port of London Authority's contributory superannuation scheme.

Application forms may be obtained from the Establishment Officer, Port of London Authority, Trinity Square, E.C.3. F. W. NUNNELEY, Secretary.

**LARGE** Midland firm of Coachbuilders require Draughtsmen experienced in the design and construction of Public Service Vehicles, both composite and all-metal. Please reply details of age, experience, and salary required to Box 292, *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1.

**DRAUGHTSMAN** wanted by well-known London technical publishing firm. Must be experienced in preparing engineering drawings suitable for reproduction in high class technical journals. Salary £350 p.a. Write stating age and experience.—Box 286, c/o *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

traffic may take place at any time after October 1, 1949. Further conferences are likely to take place between representatives of the Northern Ireland Transport Authority and local councils regarding the proposals.

**British Industrial Plastics.**—The total consolidated income of British Industrial Plastics for the year ended September 30, 1948, amounted to £396,914, compared with £353,143 for the previous twelve months, and, after allowing £141,595, against £142,000, in respect of taxes, and providing for general expenses, the net profit was £90,240, against £80,531. Ordinary dividend is again 20 per cent. and £43,174 remains to be carried forward.

**Ericsson Telephones Limited.**—After providing £338,372, against £60,312, for income tax, together with allowances for general expenses, there was a net profit of £368,436, against £200,544, for the past year. There has been placed to general reserve, £220,000, against £40,000, while the ordinary dividend of 12 per cent., plus a bonus of 3 per cent., again makes 20 per cent. for the twelve months. There remains £210,780 to be carried forward to next year.

**Timber Information Leaflets.**—Recently the Timber Development Association has issued two additional leaflets. The first of these, No. 36, written by its Scottish regional officer, describes different types of saws and illustrates a typical mill layout, while the second, No. 37, deals with 34 Siamese timbers, and supplies notes on their properties and uses. Copies of these leaflets may be obtained from the Timber Development Association, 75, Cannon Street, London, E.C.4.

**Optical Techniques in Microscopy.**—With the object of encouraging the application of optical techniques in metallurgical research the British Iron & Steel Research Association is holding a conference on May 9 and 10. The General Chairman of the conference, which will be held at Ashorne Hill, Leamington Spa, will be Mr. E. W. Colbeck, of Hadfields Limited, and the subjects for discussion will be phase contrast microscopy, multiple-beam interference technique, and the reflecting microscope.

## Rhodesia Railways

**REQUIRED:** Qualified Chemist, capable of controlling Base Exchange water softening plants throughout the system. Will also be required to initiate a small laboratory to deal with physical testing and metallurgical work, and in addition the analytical work connected with the testing of all classes of railway stores. Salary £640 by £30 to £1,000 per annum, plus cost-of-living allowance, at present amounting to 18 per cent. on basic salary, and children's cost-of-living allowance where applicable. Starting salary may be above the minimum according to qualifications and experience. Apply in writing giving full particulars of age, marital state, qualifications, and experience to the CHIEF MECHANICAL ENGINEER, P.O. Box 703, Bulawayo, Southern Rhodesia.

**RUSTON & HORNSBY DIESEL LOCOMOTIVES,** 4 wheel, chain driven, 24 in. gauge, 3 speed gearbox, forward or reverse, with Lister 2-cyl. vertical water-cooled engine, 600 r.p.m. Two 20 H.P.; three 16 H.P.; three 10 H.P. Condition equal to new; ready for immediate use.—Cox & Danks Limited, Plant & Machinery Dept., Scapa Works, Neath, Glamorgan—Neath 2205; Langley Green, Oldbury, Birmingham—Broadwell 2011.

**TRAFFIC CONTROL ON THE L.M.S.R.** Co-ordination of operating arrangements as a result of grouping.—Central, Divisional, and District Control—Outline of unified methods adopted—Organisation and working—Control telephone circuits—Daily telephonic conferences. Paper, 12 in. by 9 in. 20 pp. Illustrated. 5s. By post 5s. 2d.

Of these, apparatus for the first two are commercially available, and the third is being developed with the aid of a Nuffield grant. Further particulars of the conference may be obtained from the Metallurgy Division, B.I.S.R.A., 11, Park Lane, London, W.1.

**Egypt—Sudan Connection.**—An Agency report from Cairo states that a railway linking the Sudan with Egypt is to be built at a cost of £E5,000,000. It will link Shellal with Wadi Halfa, and run along the eastern bank of the Nile, passing through a rich mineral area.

**William Asquith Limited.**—Consolidated trading profits and sundry income for the 13½ months to September 30, 1948, amounted to £161,663, against an adjusted £161,565 for the previous twelve months. Provision for tax was £58,170, against £65,850, and the net profit of the parent company was £37,874, against £35,383. After payment of dividends including 16½ per cent. on the ordinary shares (equal to 15 per cent. per annum) last year the balance to be carried forward is increased from £19,064 to £45,708. Order books at the present time are the highest in the history of the firm.

**North British Locomotive Company.**—The available profit of the North British Locomotive Co. Ltd. for 1948 was £56,946 as compared with £64,845 during the previous year. Provision for depreciation took £75,000, against £50,000, taxation, £221,881, against £131,000, general reserve £4,323, against £60,000, and capital replacement and development reserve £92,000, against nil. A profit of £35,677 realised on the sale of certain investments has been carried direct to general reserve. The ordinary dividend is maintained at 5 per cent. and £63,130 is carried forward.

**Oxford Motor Services.**—The report of the City of Oxford Motor Services Limited for the year ended December 31, 1948, shows that the balance of the profit and loss account was £95,659, and that, after deducting £55,292 placed to general reserve and adding £40,558 brought forward from last year, there remains £80,925. The directors recommend a dividend, less in-

come tax, on the 6½ per cent. cumulative preference shares, a final dividend of 5 per cent., free of tax, on the ordinary shares, making 10 per cent. for the twelve months, and a bonus of 5 per cent., tax free, on the ordinary shares.

**Alfred Herbert Limited.**—Profits, after allowing for taxes, increased from £532,685 to £833,334, for the year ended October 31, 1948. A final dividend on the ordinary shares of 10 per cent., tax free, again makes 20 per cent. for the year, tax free, and there also is recommended this year a special capital dividend of 2 per cent.

**British Railways New Staff Hostel.**—On Wednesday last the Minister of Transport, Mr. Alfred Barnes, M.P., opened a new staff hostel and canteen at Old Oak Common. Mr. K. W. C. Grand, Chief Regional Officer, Western Region, British Railways, presided at the ceremony. Others present included Sir Cyril Hurcomb, Mr. John Benstead, Sir Eustace Missenden, Sir Alan Mount, and Mr. W. P. Allen. A description of the hostel and account of the opening ceremony will appear in our next issue. The hostel is designed to provide comfortable modern residential accommodation for 276 members of train crews for whom housing or lodgings are not obtainable in the locality, and catering facilities for the entire depot staff numbering some 2,000.

### Forthcoming Meetings

March 18 (Fri.).—Institute of Transport annual dinner at the Connaught Rooms, Great Queen Street, London, W.C.2, at 6.45 for 7.15 p.m.

March 18 (Fri.).—Institution of Railway Signal Engineers, at the London Transport Executive Signal School, Earls Court Station, S.W.5, at 6.15 p.m. "Typical Selection Circuits," by Mr. J. P. Loosemore.

March 22 (Tue.).—25 (Fri.).—Institute of Welding and British Welding Research Association, at Ashorne Hill, near Leamington Spa, Warwickshire. Conference on: "Saving of Steel and Manpower by Welding."

March 23 (Wed.).—Permanent Way Institution, London Section, at Denison House, 296, Vauxhall Bridge Road, S.W.1, at 6.30 p.m. "Railway Stores—From Producer to User," by Mr. F. H. Colebrook.

March 23 (Wed.).—Institution of Mechanical Engineers, Graduates' Section, joint meeting at the Institution of Civil Engineers, Great George Street, London, S.W.1, at 6.30 p.m. Discussion: "Road Transport." Papers by Messrs. H. P. Williams, K. D. Kefford, and W. A. Price.

March 24 (Thu.).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas' Street, London Bridge, at 5.45 p.m. "The Channel Tunnel and Ferry," by Mr. J. L. Harrington, Chief Officer (Administration), Railway Executive.

March 25 (Fri.).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 6 p.m. Annual general meeting for corporate members only. Annual report.

March 25 (Fri.).—Institution of Locomotive Engineers, annual luncheon at the Dorchester, at 12.45 for 1 p.m.

March 26 (Sat.).—British Railways, Southern Region, Lecture & Debating Society. Visit to R.M.S. *Orontes*, Tilbury Docks.

## Railway Stock Market

Markets have continued their waiting attitude and share values remained sensitive even to moderate selling. Firmness of British Funds again stood out as an exception to the general trend. Elsewhere speculative initiative found an outlet in a rally in rubber shares and in lively interest in new issues. Conditions are changing rapidly. Abolition of controls means that many industries are entering a difficult period when competition is likely to be extremely keen. The attitude of the Government to pressing problems will not become fully apparent until the Budget provisions are announced.

Foreign rails were generally lower, where changed, and speculative activity in the Brazil section was inclined to contract again in the absence of further rumours of take-over moves. Great Western of Brazil shares, after being down to 110s., at the time of writing have firmed up to 111s. 3d. Leopoldina were 8½, and the preference stock down to 29, with the 4 per cent. and 6½ per cent. debentures 8½ and 107. Leopoldina Terminal 5 per cent. debentures were 84½ and the £1 shares quoted at 1s. 6d. San Paulo reflected selling, but later made a partial rally to 146. In some quarters it is contended that the question of full compensation for the San Paulo company should be settled before any fresh take-over proposals are formulated for other British-owned railways and utilities in Brazil. In any case the final settlement of outstanding matters in respect of the San Paulo company should not be allowed to drag on into 1950.

Manila Railway "A" debentures rallied to 84 and the preference shares have changed hands at slightly over 8s. Mexican Railway 6 per cent. debentures were 86½, United of Havana 1906 debentures 12½, and Antofagasta ordinary and preference at 8½ and 57. Canadian Pacific changed hands around 19½. Beira Railway bearer shares were steady at 46s. French railway sterling bonds, after the

rise, receded, with Midi and Orleans 94 and Seine 101.

There was less business in road transports, although, after reacting, B.E.T. deferred stock rallied to £1,850. Bristol Trams were 90s. 6d., Scottish Motor 104s. 6d., and West Riding 79s. The market is now taking the view that the B.E.T. decision not to enter into voluntary take-over negotiations with British Transport is probably in the best interests of shareholders in the long run. Shares of the operating companies have been steady on the assumption that there are excellent prospects of dividends being maintained.

British Funds have been firm on the assumption that the Budget is likely to give a stimulus to this section. British transport (1978-88) at 101½ has reflected the trend to higher prices in gilt-edged. It continues to be assumed that British Gas will be made longer-dated than existing nationalisation stocks. Take-over valuations kept market prices steady in the case of irons and steels scheduled for nationalisation, but elsewhere Babcock & Wilcox fell sharply to 68s., and T. W. Ward to 65s. 9d., engineering shares being affected by fears of a higher price for steel if the steel subsidy is abolished. Tarmac were active around 71s. on the maintained 15 per cent. dividend, and the special 2½ per cent., tax free, payment arising from profits on disposal of railway wagons.

Locomotive building and engineering shares eased, but movements on balance were small, although Hurst Nelson were marked down from 80s. to 77s. 6d. Birmingham Carriage were 33s. 9d., and Central Wagon strengthened to £5. North Central Wagon were 12s. 6d., and Wagon Repairs 5s. shares 20s. 9d. Charles Roberts showed steadiness at slightly over £7. Beyer Peacock have changed hands around 22s. 9d., North British Locomotive were 21s. 9d., Gloucester Wagon 5s. 9d., and Vulcans 23s. 9d. G. D. Peters 5s. shares at 17s. 9d. responded to the good financial results.

### Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date				
				Total this year	inc. or dec. compared with 1947/48		Total	Increase or decrease			
									1948/9		
South & Central America	Antofagasta...	811	6.3.49	£ 56,870	+	£ 510	9	£ 636,830	+	£ 128,910	
	Bolivar ...	174	July, 1948	\$28,960	—	\$69,357	30	\$471,287	—	\$301,893	
	Brazil ...	...	...	...	...	...	...	...	...	...	
	Cent. Uruguay ...	970	6.11.48	32,712	+	2,978	18	593,105	—	7,652	
	Costa Rica ...	281	31.1.49	35,772	—	3,648	31	250,009	+	12,870	
	Dorada ...	70	Jan., 1949	31,649	+	8,549	4	31,649	—	8,549	
	G.W. of Brazil ...	1,040	5.3.49	37,200	—	3,200	9	377,200	—	8,400	
	Inter. Ctl. Amer. ...	794	Jan., 1949	\$1,089,802	—	\$198,851	4	\$1,089,802	—	\$198,851	
	La Guaira ...	22½	Feb., 1949	\$105,699	+	\$15,467	8	\$215,995	+	\$47,685	
	Leopoldina ...	1,920	5.3.49	50,032	—	623	9	441,055	—	74,610	
	Midland Uruguay ...	319	Sept., 1948	19,608	+	3,123	12	67,355	+	16,721	
	Nitrate ...	382	28.2.49	18,217	+	5,294	8	65,356	+	19,577	
	N.W. of Uruguay ...	113	Sept., 1948	5,686	—	1,213	12	16,335	—	1,989	
	Paraguay Cent. ...	274	4.3.49	\$89,189	—	\$9,252	35	\$3,669,344	+	\$1,311,842	
	Peru Corp. ...	1,059	Feb., 1949	221,585	+	69,198	35	1,604,881	+	245,802	
	Salvador ...	100	31.12.48	c267,000	+	c16,000	26	c776,000	+	c53,400	
Canada	San Paulo ...	153½	...	...	...	...	...	...	...	...	
	Taltal ...	156	Feb., 1949	11,595	+	2,600	35	68,930	—	10,325	
	United of Havana ...	1,301	5.3.49	\$461,385	—	\$87,536	35	\$8,584,978	—	\$3,070,055	
	Uruguay Northern ...	73	Sept., 1948	1,072	+	52	12	3,308	+	111	
	Canadian National...	23,473	Jan., 1949	9,327,250	+	826,250	4	9,327,250	+	826,750	
	Canadian Pacific ...	17,037	Jan., 1949	6,941,750	+	710,250	4	6,941,750	+	710,250	
	Various	Barsi Light*	202	Feb., 1949	33,367	+	9,677	48	305,677	+	32,505
		Beira ...	204	Dec., 1948	110,159	—	16,866	13	365,307	+	12,394
		Egyptian Delta ...	607	20.1.49	18,286	—	2,075	42	596,981	—	110,321
		Gold Coast ...	536	Jan., 1949	243,578	+	28,590	44	2,145,956	+	538,937
		Manila ...	...	...	...	...	...	...	...	...	...
		Mid. of W. Australia ...	277	Jan., 1949	27,203	+	174	31	203,052	+	40,523
		Nigeria ...	1,900	Dec., 1948	418,702	+	77,374	37	3,366,011	—	774,561
		Rhodesia ...	2,445	Sept., 1947	643,980	+	102,833	52	6,787,603	+	612,938
		South Africa ...	13,347	19.2.49	1,375,567	+	76,007	46	62,717,347	+	3,764,205
		Victoria ...	4,774	Nov., 1948	1,452,889	+	60,190	22	—	—	—

\*Receipts are calculated @ 1s. 6d. to the rupee